

ANTHROPOLOGIE

LONDON
1655







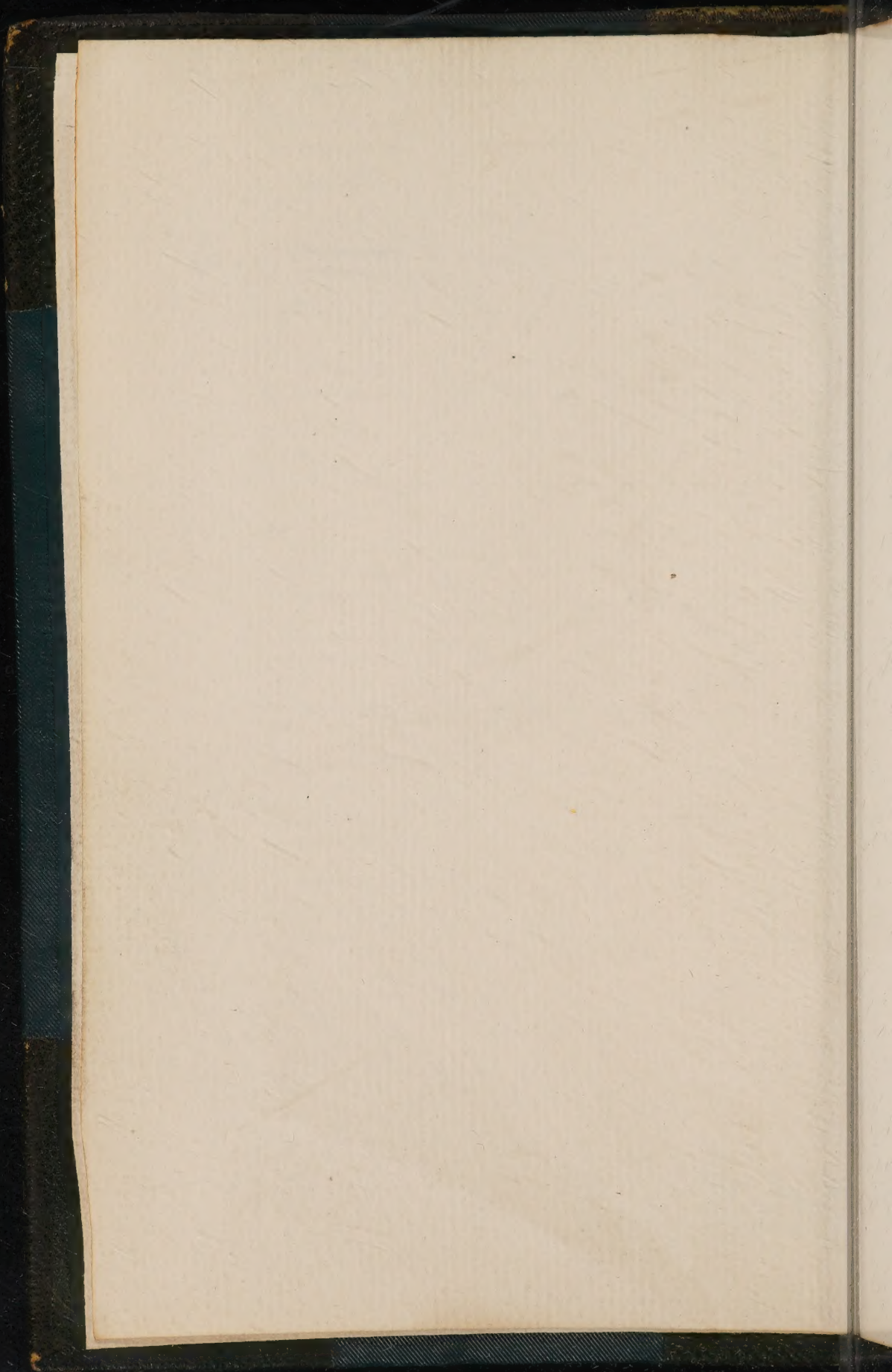
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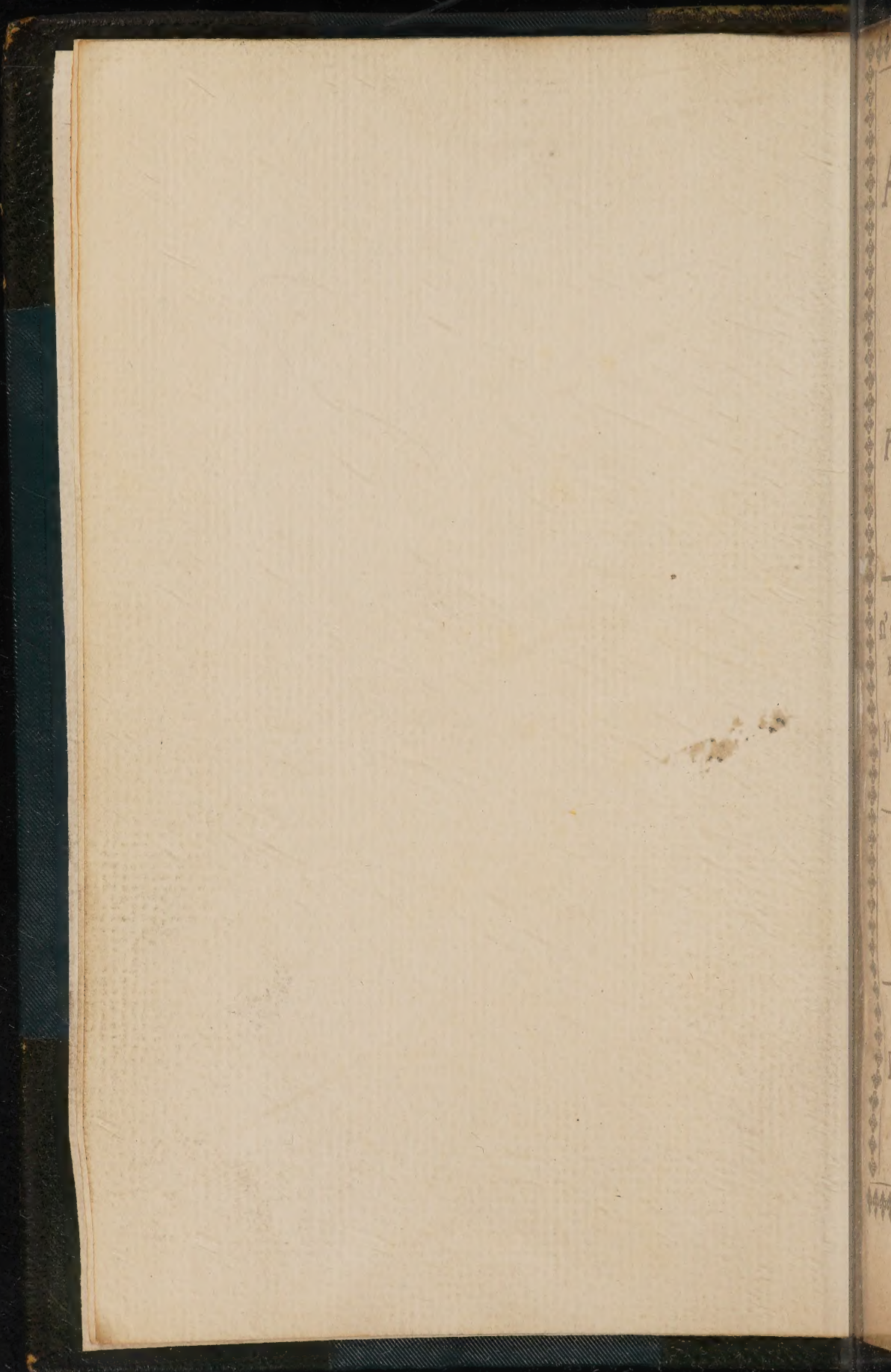
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Page 12/110





ANTHROPOLOGIE
ABSTRACTED:
OR THE
Idea of Humane Nature
Reflected in brieft
Philosophicall, and Anatomicall
COLLECTIONS.

Ω' πηδ' σοφίας! Ω' πύχης ἀειωρενίας! ὅντως
Ἦν ἄρα τότε σοφόν, ΓΝΩΘΙ ΣΕΑΤΤΟΝ ἔπος!

*Isaac Casanbon. in Elogio suo Andr. Laurentij
Anatom.*




LONDON,
Printed for Henry Herringman, at the
Anchor in the lower walke in the New
Exchange. 1655.





THE
STATIONER
TO THE
READER, &c.

ould Custom have dispensed, I well might have presented this discourse to the World, without the Formality of an Epistle: it being in it self so rich and absolute, as to deserve a candid and gratefull acceptance at the hands of all judicious persons. But, since use hath made it a Law, that the Readers Appetite must be excited by some Prologue, containing either some Commendations of the Author, or a

The Stationer

Summary account of the Arguments treated of by him: it concerns me to advertise you, (though briefly and plainly) of some things, the Knowledge whereof cannot but, in some measure, conduce both to your more easie Understanding of the Design of this Orphan piece; and the Justification of my Care and Cost, bestowed upon the publishing of it.

As for the Author, therefore, be pleased to know, that He was a Person so Eminent both for Wit and Learning, that the University wherein He was educated, and at length deservedly honoured with the Degree of Doctor in Physick, esteemed him as one of the most hopefull of his Profession, and one of the choicest Plants

To the Reader.

in all her Seminary; and when the hasty hand of Fate had crop'd him in the Budd, lamented his immature Death, with Generall sorrow, so that his Funerall Orator (as I have been lately told) was allowed to have spoken the genuine sense of his Auditory, when he said: Our losse is greater than to be felt at once, 'tis Time, and the want of such another to succeed into his room, that onely can teach us the just proportion of our misery, and his Worth.

As for the Book it self; though both the Subject Matter, and Language are far above the sphere of my mean judgement: yet I may adventure (and safely too, I presume) to tell you from some others, even of the highest
Form

The Stationer

Form of Scholars, that it contains the Rudiments of that most excellent Knowledge, the Knowledge of our selves; and those too not onely disposed into the most advantageous Method, as well for information, as Memory, but also clad in such proper and select Phrases, as soften the hardnesse of the Notions, and in every period, refresh the Attention with variety of elegant Expressions. So that it is a question (and long may continue so) whether Philosophy, or Rhetorick can claim the greatest share in this Treatise.

Whether the Author ever intended to Communicate it to the Publique, I could by no meanes learn: but the Exactnesse of the work may, in some sort, warrant
my

To the Reader.

my Conjecture, that he wrote it not onely for his own use: it being not usuall, for Learned men to bestow so much sweat and oyle upon polishing and adorning their private Collections and Memorials, as was necessary to make this so accurate. However, my good Fortune hath, after more than a dozen years since the Authors decease, brought it into my hands; and I doubt not but the benefit you shall receive by the perusing thereof, will fully convince you, that the Consideration of somewhat beside my own Gain, prevailed upon me to put the same into yours. In the confidence whereof, it becomes me to refer you to the Book it self.

H. Herringman.

OF

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History



OF THE NATURE OF THE HUMAN SOUL.

CHAP. I.

 *ANTHROPOLOGIE*, or the History of Human Nature, is, in the Vulgar (yet just) impression, distinguished into two Volumes; The first entituled *Psychologie*, the nature of the Rationall Soule discoursed: the other *Anatomie*, the Fabrick or structure of the body of man revealed in dissection. This we shall visit only *in transcurso*, and draw a transitory Landschip of so much only, as may present the method of the Soules *Oeconomy*, and her manner of dispensing orders to each distinct organ of the body: of the former, we shall in a distracted reherfall, deliver our Collections.

B

The

Of the Nature of the

The Soule (called *Anima*, by all the Friends of wisdom) is considered in a double sence (1.) as *Principium* & *altera pars compositi*, seu ut *Forma corporis*, the principall halfe of the composition, or the Forme of the body. (2.) as *Efficiens operationum*, the Efficient of all actions. Of the acception of the Soule in each of these respects, briefly; and first of the reasonable Soule as it is related to the body.

There is no one of the Philosophers, whose judgement is in health, denies the reasonable Soule to bee the *Essentiall Forme* of Man. But, since there is a double Forme (1.) one called *Forma informans*, which being the beginning, and nobler part of the compound, constitutes its specifick *Essence*, and differenceth it from all other bodies. (2.) another, named *Assistens*, which doth not give to the thing τὸ εἶναι εἰδικτόν, to be a specifick Essence; but to a thing already rich and perfect in its own nature, is superadded as *Accessory* or *Adjuvant*, to the performance of some nobler actions then of its selfe it could

could enterprise: in this sence, is the Pilot said to be the Essence or soul of the ship, although he contribute not to the ship its *τὸ εἶναι*, its being, but as an Accessarie or Auxiliary joyned with the ship, is the Author or caule of its course and navigation, which the ship of its owne single power cannot perform: here it will be seasonable to enquire, *An Anima rationalis sit forma hominis informans, alteraque ejus pars? an verò tantum assistens, quæ homini jam perfectò & formam specificam habenti adjungatur, & nobilioris in eo operationis alicujus, puta intelligentiæ, causa sit?* Whether the Rationall Soul be the Form informing & one chief part of man; or only assistant, which to a man already complete in his own distinct essence, is adjoyned, and is the cause of some nobler operation (*viz.*) intelligence in him?

An Anima hominis sit ejus forma informans? an tantum assistens?

The Arabian Averrhoes would betray our reason to an absurdity, by his assertion, *Formam hominis esse cogitativam, &c.* that the Essence of man is cogitative (a narrow terme, he is pleased to assigne it) and absolutely

lutely distinct from the imagination, and that by this, man did make a distinct species : but the Rationall Soule is onely the *Assistant forme*. To this error our faith stands no way affected. We shall declare for those that advise us ; that the rationall Soule is the true Essence of man, and the one and nobler moiety of him.

Argument 1.

For, if the Reasonable Soul were not the *Forma in formans* of man, he could owne the attribute of rationall, with no lesse absurdity, then a ship can be allowed to be intelligent, onely because it carries a Pilot that is so.

Againe,

Argument 2.

That, whereby any thing does operate, is the *Forme or Essence* of that thing, to which we ascribe the operation, for nothing operates but by its *Forme*; But to man, (*Quatenus* man) we attribute reason or intellecti-
on; Ergo, the rationall Soule is the *Essentiall forme* of the body of man.

It satisfies not, to conversion, that the Heretiques to this truth urge, that the understanding Faculty is accumulated to man *per Phantasmata*; for these *Phantasmes* have no nearer

a relation to the intellect, then colours to the sight: and as colours, nor the subject on which they depend, can be capable of sight; so can neither the Phantasmes, nor their subject understand, but are indeed understood: Wherefore we may conclude thus.

That, whereby one thing is in *specie* distinguished from another, is its Essence; but man, by the rational Soule, is distinguished from all other living Creatures. Ergo, *The rational Soule is the Essence of Man.* Argument 3.

To this one foot of *Reason*, we could add the other of *Authority*, to make this opinion current: but expansion, in contraction is a *Paradoxology*.

The explication of this, ushers our reason to the solution of a second question, viz. *An Anima rationalis in omnibus hominibus sit una? an vero in singulis peculiaris?* whether there be but one numericall Soule in all mankind; or whether a distinct one in every individuall? *An Anima rationalis in omnibus hominibus sit una? an vero in singulis peculiaris?*

They that determine the reasonable Soule to be but *Forma assistens*,
B 3 *and dreame*

dreame that it is not multiplied according to the number of men, but that there is but one single Soule in all the Species, which is the cause of intelligence in men. This is, *è diametro*, in opposition to truth, many waies. For, every *Forma informans*, (such as we have already acknowledged the rational Soule to be, is multiplied, as the individualls are multiplied. (2.) If we allow but one Soule to all men, it will be consequent that all men are but one man, for they would have but one and the same numericall Forme. (3.) The Operations, and intellections or second acts are multiplied according to the number of individualls, for our intelligence is distinct from the intelligence of another. *Ergo*, the Soule, which is the *first act*, is multiplied: For the diversity of operations depends on the diversity of *Formes*. (4.) In one and the same intellect, would be at the same instant, contrary opinions; for one man harbours one opinion, a second another, a third a quite contrary to both. But we should supererogate to light a candle to the Sunne. From

From this position, that the Rationall Soule is the true forme of man, a second Quere receives a hint to insinuate it selfe, viz. *An eadem sit immortalis? seu, an possit sine sui interitu à corpore separari?* Whether this Soule be immortall, or whether it can bee divorced from the body, without the destruction of its Essence? For us Christians, it is the easie businesse of our Faith, grounded on the *Magna Charta* of our Religion, to attest that the Soule is immortall, and that the excellency of it, is filed among those grand maximes, on which, as hinges, Christianity is moved. But whether it be not an object too subtile and sublime, for reason, though clarified by the bright perspective of *Philosophy*, to discern, is an argument yet full of perplexity and trouble.

An Anima sit immortalis?

First, let us with *J. C. Scaliger*, grant that God alone is truly immortall and incorruptible; and inferr, that there is

Scaliger Exercit. 61. sect. 5. & Exercit. 307. sect. 20.

Solus Deus ve-

re immortalis & incorruptibilis, quia solus ex se suum esse habet, atque à nullo dependit; Dei vero respectu omnia creata mortalia & corruptibilia sunt, quæ à Creatoris nutu deponi possunt ab ea essentia, in qua constituta sunt. Non corrumpuntur tamen quedam ut Angeli, & Anima rationalis, quia Creator non vult ea Corrumpti, & nihil contrarii ipsis, à quo corrumpuntur, condidit, nec eas ita materiae immerfit, ut extra eam nec subsistere, nec operari possint.

one

one immortall, which is superior to decay, or ruine, and being absolutely simple in its owne nature, receives being from its selfe, and depends not on any second: and such is *God* only, and in respect of him all things may be said subject to change by *Corruption*. For although *Angells* and the *rationall Soule*, which are in a third sence, allowed immortall, because they are never actually corrupted, consist of no contraries, and are absolutely single in their *Essences à subjecto*: yet because they are not absolute, *à Causa*, have not their *Esse* from themselves, but derive it from another, by which they may be returned to *Non-entities* againe. For every *dependant* is lyable, at the arbitrary resolve of that, on which it doth depend, to be changed; and may at the pleasure of its *principle*, be deposed from that *Essence*, in which it was, by it, created.

But the reason why some created natures are not corrupted, is the *will and decree* of the *Creator*; who constituted them single and simple without the mixture of a contrary,
(from

Human Soul.

9

from which they might derive corruptibility) nor so obliged them to matter, as that they cannot *subsist*, or *operate* without it. And that amongst natures of this order, the rational soul of man is to be list'd; and that it may be severed from the body, without the ruine of its essence, is the task of the wiser and modern Philosopher to prove. *vid. Marsil. Ficin. de immortalit. Animæ. Lib. 5. Tolet. de Anim. Lib. 3. cap. 5. Quest. 16. Fran. Picol. Lib. 3. de Hum. ment. Colleg. Conimbr. in Tract. de Anim. Separat. disput. 1. art. 3. &c.* The state of all which businesse is briefly thus.

Every thing is known by its effects; and every form reveals it selfe by its *operations*; wherefore since the actions of man are so *Noble* and *Divine*, that they cannot be attributed to a mortal substance, deeply plunged in matter; it may without obscurity be collected, that the rational soul, from which these transcendent and divine actions flow, is *immortal* and *separable* from matter.

For the *intellect* does *abstract* and
devest

Of the Nature of the

devest things of that *matter*, judge of them without the conditions of *matter*, *quantity*, or *figure*, contemplates them as unbodied and enlarged from the grosser bondage of their materials; is not (as the frailty of sense) offended, either with the *multitude*, or *vehemence* of objects, but can comprehend things infinite in number, yet still reserves room for more, & can multiply their number to a higher finity, reflects on self, and is familiar with, not only others, but its own nature, and understands that it doth understand its own intelligence; can *decree*, and *repeal*, and *resolve*, and labour with an insatiable desire of *knowledg*, *Eternity*, *Beatitude*, (which since it is incapable of satisfaction in this life we have reason to believe, that there is reserved for it a future state, in which this appetite shall be satisfied) and can perform its actions without the instruments or organs of the body.

This of the Soul in her relation to the body.

The disquisition of its nature,

Human Soul.

II

it is *principium operationum*, the efficient of all actions succeeds. To the description of it in this sense, the words of Aristotle, *Lib. 3. de anima. Anima rationalis est* *ἀπλὴ, ἁπλῆ, ἀμιγρὰ*, approach very near. But the soul must be granted simple, pure, immaterial, and unmixed, in a double respect. (1.) *ab objectis*, that its essence might not participate with the essence of objects, but be indued only with power to receive them. For, since the business of the soul is the *comprehension*, and *knowledg* of objects; and this can be performed only by *reception*; it is a necessary illation, that its essence must be *simple, pure, and unmixed* with the essence of objects. For, nothing, without an affront to reason, can be said to receive that, which is its own already by essence: & *intus existens prohibet alienum*. And this *immixtion* is common to the rational soul with the *senses* also: For, they in like manner contain not their objects in themselves, but have only a *Capacity* of receiving them in: but here's the difference, the senses are free and unmixed.

mixt, only *secundum quid*, and from one single *species* of *Ens* (for example the Sight is free only from Colours for their businesse is not about plurality of Entities; but the rational soul is absolutely free from essence of all other things, as, being by the institution of God, directed to the reception and admission of all created Natures.

2. *Immista ab Organo.*

Again, the rational soul is by peculiar manner *Ἀμυγδῆς*, *immista ab organo*, *nec cum eo permista*. Free, and immixt, organical, when it operates in act *intelligential*, or *voluntary*, and performs its actions without the bodies assistance. For since to the performing those actions which are done in and by the body, there is a peculiar harmonious temper of qualities (for every particular reception expects a distinct, exact preparation, and disposition) and by consequence, an equally tempered Organ of the same constitution, required; and since each distinct part of the human body, hath a proper and distinct temper: but the rational soul is neither (as it is in it selfe) obli-

obliged to any certain definite constitution, or composition of first qualities; nor affected by them: nor can there in the body be found any adequate and proper Organ for it: we must confesse, that the soul in the dispatch of her businesse hath no dependance on the body, but is *immaterial, and inorganical*.

From this third immision of the Soul, we have a cleer prospect towards her *operations*. For since she in *Agendo* is not obliged to the body, and that the actions of the body communicate nothing with the actions of the mind: it results a familiar truth, that the *understanding* and *will*, are *powers inorganical*, and do *Agere* of themselves; so that to *understand* and to *will*, are the proper actions of the *mind*: nor doth the mind understand by the body, or any instrument of it, as by a *Medium* necessary.

Indeed she is beholding to the *Imagination*, for while she remains unmured in this darke Monastery, the body, shee never understands without the assistance of the *Phantasia*

tasie. (*Aristot. Lib. 3. de Anima. ca.*
 7.) yet not as *Organon*, but as *O-*
jectum. For it is necessary that inte-
 ligibles be conveyed to the *reason*
 the *sense*. Wherefore, if any sha-
 positively assert, that the actions
 the minde are *Organicall*; and th
 the *Rationall Soule* doth make u
 of the subservient ministry of th
Braine and *Animal spirit*, and *sens*
 as her *Corporeall instruments*: We da
 admit it, onely in the subsequen
 fence. That the *Soule*, while sh
 sojournes in the result of dust an
 ashes, doth not understand, witho
 the operations of the *Organs* of th
 body præceding her owne operati
 ons: or that in her second and full

Hinc sagacissi-
mus Romani
Imperij reip. Sto-
ica, & sui ipsius
Αὐτοεργότος
Mare. Ant. lib.
10. cap. 1.
Exclamat, Ah!
quando veniet
illud tempus d
anima, cum bo-
na, simplex, u-
nica, & nuda, corpore denique tibi circumjecto, magis conspicua er
 cum gustabis perfecti amoris affectum: plena eris, nullius indige
 nihil desiderans, neque animati, neque inanimati ad fruitiones volup
 tum, &c. l. 1. n. 10. Ex versione Merie. Casaubon.

ordinate actions she becomes instr
 mentall, and uses the assistance
 the *Braine* and *Animall Spirits*: bu
 not in the least measure, when sh
 operates *per se*, and is undisturbed
 imploy'd about her pure *intelligen*
 and *pure will*: for then her sublim
 conceptions and intellection tow

in an immateriall Sphere, superior to that wherein the duller meditation of Organs confines her, and is her self the subject of her owne speculation, and intelligence and will. Which last act is by a new, yet convenient notion, called *Volition caliger. Exercit. 307. sect. 3. & 9.*

And although the understanding faculty doth suffer depravation in diseases of the braine: yet that depends on no other reason, then that the subordinate, and subministring faculties, which are Organicall and interested in the Constitution of the braine, are injured.

Moreover, though the Human soule be plentifully furnished with all the Attributes of the Vegetative and sensible Soule: yet she is enriched with two other diviner Faculties, whereby she transcends in excellence all other vegetable and sensitive creatures) (1.) the *Intellect*, ^{1. Intellectus.} whereby wee conceive and know; (2.) the *will*, which inclines us to ^{2. Voluntas.} those things, which in the judgement of our reason are good. The essence of this dictated to *Hermes Trismegistus*

megistus, this sentence; ὁ ἄνθρωπος
ζῶν ἐπαισινέεται καὶ τῷ κόσμῳ διὰ τὸν λόγον καὶ τὸν
&c. *Homo brutis & mundo præstat ra-*
one & mente.

The difference of these two faculties is manifest, for it is one thing to know, and another to desire the thing known. Further, these two operations diversely; the former, *Patiendo*, and by admission of the species, so that they may be intromitted to the mind; the latter *Agendo*, and by prosecution, so that the mind may be extramission, advanced towards the object. Again, the diversity of the objects discerns the power of knowing, from the power of Volition: for we know things *quatenus entia*, but we desire them *quatenus bona*.

This, by strong inference makes good, that the intellect is not ranked with, yet hath a power spiritually to admit and comprehend all other actual Entities.

Aristotle, possessed with an apprehension, that in the mind of man beside that which hath a power to be made, all things, viz. by intelligence, and supplies the place of man

ter; there is also something else discharging the office of *Form*, which hath power to make all things, viz. actually intelligible: differenceth the intellect into (1) *Active*, and (2) *Passive*.

But to determine what this *Intellectus Agens* is, hath afflicted the braines of firmer heads then ours. Some (& those of the upper house of *Philosophers*) have voted it to be the Supream wisdome, or some Dæmon, or Superior intelligence auxiliant to man. But these dreamers rove as wide off the sence of *Aristotle*, as of Truth. For his theame in *Lib. de Anima* is *Intellectus Humanus*: and in *Lib. 3. de An. c. 5.* he expressly calls the *Active Intelligence*, a certaine difference in the Soule. (2.) Againe, this *intellection*, which streams from the *Active intellect*, is settled within the region of our selves, and under our own command, and is not transmitted immediately from God, or any other auxiliary intelligence (3.). Lastly, since God in the fabrick of our intellect, hath enriched it with a wealthy measure of illumination;

*Intellectus
Agens.*

we shall blaspheme the bounty and wisdom of our Creation, to compell him to bee immediately supervisor and assistant to it in all actions. But the *Active intellect* is in the sense of *Aristotle*, that difference of our *informer*, our *Soule*, which advanceth things *intelligible in potestate* to the perfection of *intelligibles in Actu*. For as an effect *Naturall* owes its production to an *Agent* of the same *genus*; and to Effects *Artificiall* is required a distinct *Art*: so to the worke of the mind, which is the act of intelligence is required an *Agent*, not Heterogeneous, several and distinct from, but what is a part or certaine difference of the Soul.

And although this *Intellectus Agens* be, by the severity of some judgments, proclaimed an exile from the borders of Philosophy: yet that it will become the justice of our reason to welcome it, is demonstrable from this truth. Whatsoever action is done, is performed *in aliquo, et ab aliquo, sed alio*, in, and by some second that is different: Now universals are made, the intellect being

being *Passive*: *Ergo*, there must be some other *active* power to make universals. For since every patient requires a determinate Agent, and nothing in nature can deduce it self, *è potestate in actum*: and since our understanding is constituted only in the power, or capacity to admit objects actually intelligible, and that by reception: it follows, that if we allow a Passive, we cannot deny an Active intellect; and if we remove one, we lose both. Wherefore an *intellectus agens* is necessary for this reason, that it may make all things actually intelligible, and translate the object *de ordine in ordinem*, from the capacity to the act. For since every object or phantasm is material, and so under the opposite condition of the power intelligent, which is abstracted, and immaterial, it cannot be comprehended by the intellect, until it become abstracted, immaterial, and proportionate to the intellect; and this can never be done, but by a power abstracted, and an *essence intelligent*.

From this we may derive information

mation, that the Office of the understanding is *Agere* (i. e.) to advance from the *Capacity* to the *act*; and of objects intelligible in *Potentia*, to make them intelligible in *actu*.

This office of the understanding the Philosopher explains by that analogy or similitude, which it holds with *Art*, *Nature*, *Habit*, and *Light*. For it is as it were the eye of the minde, and is as neerly related to objects, as *Light* to *Colours*. It surveys and illustrates the phantasmes or objects, naked and divested of those material conditions, which like clouds, benight their intelligibility, that they may be reinvested with the brighter nature of intelligibles; and thus like prepared Brides be presented to the embraces of the Passive intellect: just as colours transmit their image to the sight by the *qualification* and *assistance* of *light*.

But this illustration, illumination, or qualification of the Phantasmes, is not done *Formaliter*, so that they retain the impression of any quality, nor *objective* only, but *effective*:

effectivè; because the active intellect as an external *light*, doth by the association of its own lustre, sublime the objects to the production of the image intelligible: Neither is the *intellectus agens* required only *pro subiecto*, for a subject, but hath an other part to act, *viz.* in the Passive intellect, to produce the act of intelligence, by representing to it, the object in its intelligible species: and this it performes, when associated with the illumined object, it produceth the image of the intelligible to the passive intellect. Hence may we collect, (1.) on what, (2.) in what manner the Active intellect does *operate*; for it is required to the performance of both actions, as well that it operats on the objects, as on the Passive intellect; but on each in a distinct and severall manner: for it is joyned to the phantasmes before the act of intelligence; and indeed, while they are yet remaining in the imagination, where illuminating them, it becomes their *Form*, whereby they are constituted the *Objectum motivum* of the Passive intel-

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The Nature of the

intellect: after joyned in commissi-
on with these objects thus illumi-
nated, it operats on the passive in-
tellect, by producing in it the spe-
cies intelligible; and by sequel, the
intellection or act of understanding.

But this *intellectus agens* doth not
understand, *quà Agens*, since it re-
ceives not the images or notions in-
telligible, although it *produce* them;
neither is sited in the capacity of
intelligence, but is the intellection
in the Passive intellect, as in its sub-
ject, wherefore this is called *intellectus Formaliter*; the other only *effec-
tivè*, because it effects the intelli-
gence.

*Intellectus
paribilis.*

The intellectus ~~magis~~ *Passive*, is,
as it were the *matter*, or *subject*, on
which the images intelligible are
impressed. Hence it derives the de-
nomination of *Patient* and *Patible*,
for it is passive in the admission of
the species, by the intervention, or
mediation of the Phantasms. This
is also called *intellectus possibilis, et
mens potestate*; because it is endued
with a capacity to be all things by
intelligence. But to reveal the dark
and

and mysterious sence of these words, the understanding passive hath a capacity to be made all things by intelligence, we must be illuminated by a beam of that refulgent Constellation in the Firmament of Learning.

“Jul. Cas. Scaliger Exercit. 307. Sect.
 “6. Principio (inquit) negoti tibi illud
 “à Philosopho dictum esse: intellectum
 “ nostrum esse omnia essentialiter, aut
 “ formaliter: Sed est omnia subjectivè, si-
 “ cut Materia prima: quæ non fit Equi
 “ essentia sub equi formâ, sed remanet
 “ id, quod erat substantia quædam: ex
 “ qua & forma, fit hoc aliquid. Alia
 “ tamen ratio est in intellectus informati-
 “ one. Ipse enim non est potentia pu-
 “ ra, ut materia prima, quæ reducatur ad
 “ hoc, ut actu sit hoc aliquid per for-
 “ mam. Sed ipse forma nostra est substan-
 “ tialis, separabilis, incorruptibilis, æ-
 “ ternus, ex quo tanquam ex subjecto
 “ essentialiter perfecto, & specie, quam
 “ recipit fit intellectus informatus: non a-
 “ lius a seipso: nisi sicut Cæsar edoctus, fit
 “ alius à seipso: propter receptas species
 “ accidentales: Non igitur fit intellectus
 “ simpliciter, nec fit ipsa species, sed sub
 “ specie.

Of the Nature of the

The reflex of all which is, that the intellect Passive, is not capable of being all things *Essentially*, but *Subjectively*.

As in this, which concerns the first difference of the understanding, we have exercised the *patience*: so we shall the *mercy* of *Candor*, and presume forgiveness if we adde: that the intellect Active and Passive are not *Essentially and Really*, but onely in the *reason distinct*. For, two internall **Formes** cannot be united by new accidents: and both to effect, and receive an Action *immanent* (such as is the intellection) is required a principle *single* in Essence. Wherefore our sense is, that the Essence of the Active and Passive intellect, is one & the same: and that *quoad Esse*, there is but one intellect; which, in that it makes things intelligible, illustrates the Phantasmes, and intrust's them to the custody of the Passive, is called the Agent: but in that it is the *Subject Recipient* of abstracted and immateriall objects, it deservedly ownes the name of *Passive*.

In

In this seamlesse Vesture, the *Understanding*, the factious speculation of *Aristotle*, would espie a second rent; and untwist it into an intellect ^{2. Intellectus in}
 1. in *Habit*, and (2.) in *Act* : but ^{1. Habitu.}
 Truth dictates, that these are onely ^{2. Actu.}
 the *degrees* of one, and the same intellect: and are not by any Law, but that arbitrary power of discourse, warranted for *differences*.

For, that is the intellect in *Habit*, which hath the object treasured up in the wealthy Magazine of the *Phanasy* ; and by one degree of perfection transcends the intellect in possibility. For this is in the capacity to the *first Act* ; but that for the *second*, or, is prepared to admit the action of the *Agent*.

Concerning this *Zabarell* hath other thoughts; and believes, that the mind of man is at first *rude, fallow* and *unapt* to the knowledge & comprehension of intelligibles: but after, by the *acts of intelligence multiplied*, it acquires so large an *hability* and *aptitude* to comprehension: that it can, without labour and difficulty, at its own pleasure, addresse it self to the
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imagination, and immediately understand: and that the intellect enriched with this faire Hability, is called the *Intellect in Habit*: but when the Passive intellect doth actually operate (i. e.) actually discern the object presented, it is called the *Intellect in Act*.

3. *Intellectus.*

1. *Speculativus.*

2. *Practicus.*

The last distinction of the intellect is into (1.) θεωρητικόν, *Speculativum*, & (2.) πρακτικόν, *Practicum*. Which termes do not constitute a duality of powers intellectuall, nor insinuate, either the differences or degrees of the same intellect: but implicitly expresse both Faculties of the rationally Soul: by the Epithite *Speculativum*; the *Understanding* properly so called; by *practicum* the *Will*. For when the intellect, in regard of its apprehension of a thing; and again according to the affirmation or negation of the true or false, cannot be expressed by any more convenient name then *Speculative*: it followes that this difference arose in respect of the third attribute of the intellect practically, (viz.) the prosecution and aversion or flight, which are actions of the will.

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The Operation of the intellect to which all the offices of these degrees are destined) is *Intellection*. *Intellectus operatio.* Which is not the same with the images intelligible, but really differs from them; and is more truly defined (1.) by the reception and apprehension, (2.) by the judgement of the species intelligible. For the intellect exerciseth a double operation on the object; the first a simple or bare apprehension or Knowledge: the second (called Composition and Division) a compound apprehension or judgement, which consists in the assent or dissent. Hence is the intellect said to be double also (1.) simple, when it knows an object simple and incomplex. (2.) Compound, when it judgeth a proposition true, or false.

The object of intellection, which both moves, and determines the understanding, is *Ens*, accepted universally, and as it comprehends both materiall and immateriall natures; yet allayed with some necessary qualifications and conditions: and first *Universality*; for that *Ens* may be received

Objectum intellectionis
Ens.

1. *Universale.*

2. *Intelligibile.*3. *Verum.*

*Phantasmata
illuminata,
quid.*

received and discerned by the intellect, it must be abstracted and separate from singulars: (2.) *intelligibility*, or sublimation from the sordid condition of matter : (3.) *Verity*. This object, thus, by the Active intellect adæquated, conditioned, and proportioned to the mind, is called *species intelligibilis* the *image intelligible*: as that which the courser sense receives, is called *species sensibilis*, the *image sensible*.

These intelligible Species are the *Phantasms* illumined, irradiated illustrated (*i.e.*) extracted from the dreggs or conditions of matter, and by the Active impressed on the passive intellect; and by the rule of Consequence, are *Accidents spiritualis* and indivisible. For not the substance, but the accidents, find admission to the sense. *Scalig. Exercit. 303. Sect. 7.* Wherefore onely accidents constitute the Species in the Understanding. Among these are *Locus, Tempus, & unitas finita quantitatis*; which being removed by the discriminative power of the intellect, there will reside the *substantiall universall Species*

Species: as when you see any disguised or armed, first you discern the armes; when they are sublated, the man himself.

To relieve our assertion (that the things which are to become objects to the intellect, must be stript, and disrobed of matter and Conditions singular) from the ambush of a Contradiction; it will be opportune to resolve; after what manner the understanding can know *singulars*; or whether it be capable onely of *Universalis*? Our determination is, that the mind of man doth also comprehend singulars. For since all the subordinate *cognoscent* Faculties are so, by mutuall concatenation united, and as it were identified, that the end of one action is the beginning to another; and whatever is discerned by an inferior, is also familiar to a superior Faculty: but the sense and imagination comprehend *singulars*: wherefore, by necessary inference, the mind knowes *singulars* also. And from this knowledge, is man enabled to compare and ballance an *Universal* with a *singular*;

*Mens humana
singularia
cognoscit.*

lar; and the mind formes singular propositions, that from them, may collect *Universalls*: and so often corrects the senses judgement of singulars, as they, by reason of the disaffection or depraved disposition to the objects, are guilty of delusion & aberration. But this cognition of singulars is wrought by Accidents for from proper singular accidents we extract the notion proper to singulars; as in like manner, from the notions proper to the species, we pick out the Phantasme proper to the species.

Intellectio.

1. *Recta.*

2. *Reflexa.*

Intellection, or the Act of understanding is vulgarly disunited into (1.) *Rectam*, direct or simple. (2.) *Reflexam*, reflex, or ingeminate. Our intellection is direct, when the first simple apprehension, the Species arrests and wholly possesses the intellect, so that it desists from any further prosecution, or disquisition: as when it is barely imployed in the first conception of a man, Ox or Horse, &c. *Reflex*, doubled, or reciprocated, when the mind reflects on the knowledge of its selfe, and

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both understand its owne intellecti-
on, and discernes it selfe to be an in-
tellect; that is an Essence pure and
immateriall, a bright nature, irradi-
ated by the reflexive glory of the E-
ternall Wisedome.

Here our Aversion to obscurity *Abstractio*
may excuse a short digression, if we *quid?*
insert, that, by *Abstraction* we intend,
a separation of singling (in the un-
derstanding) out of one thing from
all others. For in abstraction, not
all things inherent in the subject are
knowne, but onely that which is ab-
stracted. V. G. to abstract *Animal ab*
Equo, the living Creature from the
Horse; is to consider onely the Ani-
mality, the Equiety being altoge-
ther inconsidered and superseded.

Lastly, *Voluntas the will*, is the other *Voluntas.*
power of the rationall Soul, where-
by we prosecute or abhor, embrace, or
reject the objects known by the Un-
derstanding: Or, is the intellect expan-
ded & diffused, to admit, or execute what
it understands. This also by some,
is termed *Appetitus Rationalis*, the
reasonable appetite. For as the sensitive
appetite followes the Knowledge
of

of the *Sense*. So doth a proper and peculiar desire of fruition attend the knowledge of the mind; which, for distinction from the former, becomes the appellation of the *will*: and that the *rational* doth absolutely differ from the *sensitive* appetite, is familiar from this, that they have too frequent

Videatur Aurelij Prudentij
ψυχμαζία, seu
 de Compugnancia
 Anima, liber.

Conflicts and Contentions betwixt them. This *Antipathy* or *Duello* betwixt these two *indigenæ*, the ingenious frailty of Saint Paul discovered to be radicated, beyond all possibility of reconcilment; untill our Exaltation from the residence of sensuality; therefore with *ταλαίπωρος ἐγὼ ἄνθρωπος, τίς με εὔσκει, &c.* Ejaculates his Vote for Emancipation from the tyranny of Flesh. And were this Philosophy lectured to the Junior Pharisees of our Age (though, would Charity dispence we may fear their incapacity of Fixation, but by ignition, or reduction, but by distillation *per descensum*) it would deride their ambition of singular and divine purity and humble them to confession of their

their large sympathicall distemper from the Common wounds of Humanity. But we ask pardon for our Parenthesis.

The object, which provokes the will, is *Bonum & Malum*, Good and Evil; so conceived by the understanding and tendred to the will: hence it prosecutes good and abhors evil. The Actions of the will are (1.) *Volition*, (2.) *Nolition*; and these are double, (1.) *Elicite* chosen or elected, which the will, by it selfe, and not by the inservient Faculties, doth select and execute: (2.) *imperata injunctive* which the Will commands to bee done by the subordinate powers.

These *subservient Faculties*, which by the Law of Fate, are subjects to the Scepter of the Will, are (1.) the *Locomotive*, (2.) the *Sensitive Appetite*. For our motion and quiescence succeed each other at the pleasure and command of the Will: But that *dominion*, which the Will, before our Grandfathers apostacy from the rule of reason, extended over the *sensuall Appetite*, is contracted and

D dimi-

*Ejus Objeſtum
Bonum & ma-
lum.*

The Nature of the

diminished by the usurped incroachment of *Sensuality*: and that harmonious concord, which at the primitive constitution, was maintained betwixt both faculties, so confusedly infringed; that the revolted *sensitive Appetite*, renounces all conformity to the sober *adviso'es* of the rationall Will: and may, with an easie Metaphor, assimilate *Ovids*, *Fertur equis Auriga, nec audit Currus habenas*: or that diviner distich of *Hermanus*. *Hugo Lib. 2. de piis Votis*.

*Frena nihil patitur minùs, atq; libido
vovendi,*

Nec se lege sinunt libera vota premi.

There's naught abhorrs Confinement like our lust,
Nor are our Votes Conformed to what's just.

But to a Lordship over the *Vegetive Faculty*, the Charter of the *will* extends not: for that workes positively, and absolutely naturall, neither is our *Nutrition*, *Accretion*, or *majoration*, at the improvement or *dissipation* of the *will*.

CHAP

CHAP. II.

Of the Traduction of the Human Soul:

THE second grand Remora's, which retard the Soul, in her voyage for the discovery of *wisdom*, and Charmehar Compasse to a variation from the pacifick Sea of *Truth*, to the dangerous Torrent of *Error*; are (1.) *servile Credulity* (2.) *Vainglorious Singularity*. To the first, most have cowardly, or supinely, prostituted their habilities of disquisition; and have so firmly vowed implicate homage to the superstitious Sovereignty of Antiquity, that, if but a *Tradition* be contradicted, it proves *Criminall*, and *Reason* and *Experience* (the two best Counsellors) are deposed as *innovators*. The other inveigles her disciples into the opposite extream: and would demolish the substantial buildings, on which the reverend hand of *Authority* hath recorded *Truth*, in deep ingravements: that on their ruins, the pageant superstructures of *solidi-*

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tary dreams may find advancement. From this we may (we hope without Treason against the Majesty of justice) affirm our endeavours diverted from the former, we despair not to relieve our *Reader*, who noe sooner, with but halfe an eye, glances on the inscription of this leafe; but presumes our discourse *Erroneous*, because *inquisitive* into the Antient and popular assertion, that the Human Soul is created by infusion.

If any shall here arrest us, for an incroachment on the sacred *royalty* of *Theology*; our plea is, that whatsoever of the Human Soules Originall is within the borders of reason, lyes in Common also to *Philosophy*: that our thoughts are so clear from design to propagate *Heresie*, or oppose our Conceptions to any *Fundametnall* of Faith: that we humbly tender them as *Positions* most probable and consentaneous to Verity; but not intrude them as *Magisteriall dictates*.

1. *Thesis.*

Our first Article is; that the Human soul is, by the hereditary vertue of the divine benediction, *Crescite*

cite & multiplicamini, propagated and traduced, by the seed of Parents to their issue.

Our first Argument hopes supportment from that *Axiome*, *Simile* *Simile generat*, so appositely attested by *Aristotle. Lib. de An. c. 4. T. 34*: in these words: φυσικώτατον τῶν ἐν τοῖς ζῶσι ἐργῶν, ὅσα τέλεια καὶ μὴ πρῶματα, ἢ τὴν γένεσιν αὐτίματος ἔχει τὸ ποιῆσαι ἕτερον ὅιον αὐτὸ ζῶν καὶ ζῶν φυτὸν δὲ φυτὸν, ἵνα τὰ αἰεὶ καὶ τὰ θεῖα μετέχωσιν, ἢ δυνάμει &c. rehearsed thus: This operation, of all other, is most naturall to Animals, those, I mean, which are perfect, not defective or mutilated, and are not generated without seed; for every one to procreate his like, an Animal, an Animal, a Plant, a Plant: That by this way, as far as they are able, they may enterprise perpetuity. For when the wise Creator constituted every thing, in its kind, perfect, but man, as his *masterpiece* and *abridgement* (in whom the ideas of all other created natures are collectively refulgent) most perfect and exact: he cannot justly owne the attribute of perfection, but must

be enrolled amongst *Aristotles* *ἀνεπίστατα*, *Mutilates*, if he be destitute of power to procreate another man, perfect and altogether such as himself. This hath prevailed upon most Naturalists & many Divines, to conclude; That man does absolutely procreate man and the whole man, which could not be, if the *procreator* did not communicate the Soul to his issue, for since man consists of a body and a Soul, if the Soul be not communicative from the Genitors, man cannot propagate man.

This also is consentaneous, to the sense of *sacred Scripture*; For God (*Gen. 1. verse 28.*) distributed to man equally, with all other living creatures, his virtual benediction of *crescite & multiplicamini*: by the lineal inheritance of which, the whole man does propagate the whole man. And were it not a frustration of the *Energy* of the Almighty's blessing, if our opinions concede the Soul deduceable, from any *Extrinsic cause*.

Arg. 2.

For whatsoever belongs to the essential integrity of human nature, doth

doth man propagate by generation; but not only the body, but the Soul also is *essentiall* to human integrity. Ergo, the soul is also propagated by generation. Hence Damascen. *Lib. de Orth. Fide*, defines generation to be *ex concursu maris et feminae similis substantiae individui procreationem*.

Neither is the souls *ἕξις*, or transcendent excellence to be derived from her Creation: For not *quicquid creatur est immortale*; but rather every created nature, if we regard its principal, is *per se* mortal: and the reason why some natures are mortal, others immortal, is not deducible from the condition of their materials, but from the omnipotent, *sic placuit*, and voluntary decretal of the Creator; who created whatsoever, whensoever, and howsoever he pleased. And such is the human nature, as the eternal will of God resolved it, and firmly conserving the essence granted, is according to the *institutio* of the same wil propagated. *Argu. 2. 3*

Our other *firmer Basis*, on which our affirmation of the Souls *extra-*

Of the Tradition of the

duction relies, is the propagation and hereditary transmission of sin together with the Soul, from our first Grandfather *Adam*, to all posterity, and is erected by an argument, betraying to *impossibility* or *absurdity*, thus.

If the Soul be created by infusion, or infused by Creation; God either created the Soul evil and depraved, or infused a tincture of evil into it, after it was created: both which, while they allow God to be the immediate *original* of the Soul, inferre a dangerous impiety, and conclude him the *Author* of sin. Or secondly, the Soul being by her creation, *perfect, white, and immaculate*, doth contract her *iniquitation, corruption, and blemishes* from the body. But according to the Canon Law of Metaphysicks, no *material* can *agere* on an *immaterial*, by a *natural act*. True it is, by a general confession, that the customary inclinations of the mind, do more then frequently confesse their subjection to the influence of the constitution of the body; but this is done *actu morali*,
by

by inclination and disposition, not by impression of any real, Physical, miasme, or pollution: by the same way whereby the stars rule us, and God the stars.

2ly. Our Saviour, *Mat. 15. V. 2.* expressly declares, that from the Heart, as from a polluted fountain, do spring the streams that render man sullied and impure; and that which commeth out of the mouth defileth man, (*i. e.*) *θυμὸς καὶ ἐπιθυμία*, the mind, and radical Concupiscence, are the common sources, from which all sin is derivative.

Or thirdly, we must compulsively concede, that sin is transmitted or descended from Adam, to us, by way of imitation, not propagation or production: which error of Pelagius is missed out of the Schooles by the Arminians.

But Peter du Moulin conceives to himself an easie protection from the danger of these rocks, by affirming that God created the Soul morally, good and perfect, but (by super-vention of Adams *παραπτώμα*, precipitous fall) destitute of supernatu-
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ral light; and therefore because the Soul is, by the natural swindge of Essential appetite, rapt on to good; but for want of the manuduction of divine light *μωωπίζε* is purblind, and insufficient to steer it selfe to the true supream good, viz. God; it violently pursues the creatures viz. *Bonum jucundum et utile*: and thus by aberration from, and dereliction of the principal and true good, doth become spiritually depraved and tainted.

But this way of evasion is unsafe upon a maturer sounding, and this resolve (without impeachment of the honour due to so much learning) too narrow a tablet to pourtraict the nature of Original sin on; as if it could be nothing but barely the privation of supernatural light, by the dictates whereof, it might direct to, and fix on the summary good, where the Soul is purely passive: When Gen. Chap. 8. Verse 22. it is intituled, *Figmentum Cordis*, the contrivment or Poesie of the heart, evill, and totally corrupted from the cradle; because, like a Potter, it moulds, fashions,

ions, and actuates lusts, and concupiscence; as if in our soul were δύναμις πλαστική, a *conformative* power, whereby our hearts can fashion and proportion evil. Truly the cause *procatartica*, or provocative, is from without; but γεννητική, the *native*, and *preconceptive*, is in the very Soul.

2ly. That universal determination of Divines, that the Soul in supernaturalibus est *deprivata*, in naturalibus *depravata*: Whence therefore is this Cymmerian dimness and obscurity of the understanding; even in the businesse of her own proper objects (*viz*) *naturals and intelligibles*, to which is no way required the assistance of *divine light*? when our *ingenerated progenitor Adam* (before his transgression, contracted a black cloud over his reason, and obnubilated its primitive clarity) was exactly read and experienced in the natures of Animals, and hence *accommodated appellations* to each distinct species.

3ly. Why in the Sacrament of Baptism doth the element of water

ter symbolize washing, clensing, and purging, unlesse in implicate relation to our uncleannesse, and the *Minera* of our polluted Nature, the reaty or guilt, though not the reality, whereof is absterged and expunged by Baptism? And were it not a *Pavergie*, we could urge the same of Circumcision.

4. Lastly, if we perpend the nature, and symptomes of the primitive crime of *Adam*, we shall discover a tract or view of it deeply impressed in all his succession; so that thence we may sympathetically confesse it to be *malum hereditarium*, an evil radically and lineally descending to all posterity: a desire of knowledg, a palliation, and extenuation of the fact, a translation of the guilt on others, *et quod nemini obtrudi potest; on God himselfe*. All which are the *Vestigia* of the first sin, and evidently conclude in the phrase of the sacred *Historiographer*, *Gen. Chap. 5. Ver. 3.* that *Adam* begot sons in his likeness, after his own image: which image, all Divines conclude, to include *Original sin*, and the penalty of

of eternal death, which he propagated in his issue, in the room of that *Majestick image of Divinity*, received at his first inauguration to manhood.

Our other position (in the opinion of which we are likely to end our daies) is, *Animam humanam initio Conceptionis statim adesse*: that the human Soul is present in the very first moment of conception, as soon as the *prolifick seminary* Emissions of both sexes are mixed, by mutual incorporation, prepared to Fermentation, and conserved in the womb, when the operation conformativè begins; and that there can be properly assigned no other cause efficient, which should enterprize the conformation, but the rational Soul. *Thesis 2.*

For wheresoever the proper operations of the human Soul are, there must her presence be acknowledged also; but in the first conception her operations are visible. Ergo, she must then, and there be present also.

The operations of the Soul in the Conception, are (1.) the conformati-

on of the membranous, scarfs that invade and enshroud the Embryo (2.) The Embryo it selfe. (3.) the augmentation of it; for a Meridian truth it is, that no sooner are the parts of the Infant delineated, and their rudiments proportion'd, but they progresse to majoration, or augmentation; but in the augmentation, the Soul is communicated to the acceding parts; wherefore it is necessary that those parts which accresce, or are additional, should partake Animation, in the very first augmentation. For how it grates the harmonious ears of reason, to allow the infant after birth, to be Majorated by the influence of another Soul, then that by which it was augmented in the womb.

That the Conformation begins with the Conception, we are solemnly invited to concede, as well from the incessant and early activity of Nature, (in which idlenesse can be imagined with no lesse absurdity then Emptiness) as by the autopticall observation of Abortive Embrio's. Hippocrates Lib. de Natura Pueri, describes the Geniture,

niture, which his Fæmal Harper,
by obeying his Pagan prescript, on
the sixth day, after Conception,
danced to abortion, in these words,

οἶον εἰ τις ποῦ ὤμῃ τὸ ἐξω λεπτύειον περιέλοιεν, ἐν
τῷ ἐνδον ὑμένι τὸ ἐνδον ὑγρὸν διαφαίνοιστο. Τρόπος
μὲν τις ἦν τοιούτος, ἅλις εἶπεῖν. ἦν καὶ ἐρυθρὸν καὶ
ερυγγύλον· ἐν δὲ τῷ ὑμένι ἐφαίνοντο ἐνέῃσαι ἴνες
λευκαὶ καὶ παχεῖαι, ἐιλημμένα ζῆν ἰχῶει παχεῖ
καὶ ἐρυθρῶ, καὶ ἀμφὶ τὸ ὑμένα ἐξωθεν αἰμάλωπις,
κατ' δ' ἰσὺν τοῦ ὑμένος, ἀπῆχε λεπτὴν, ὅτι μοι
ἐδῶκεν εἶναι ὁμφαλὸς καὶ κέντρον τῷ πρὸς τὸ καὶ εἶσαι
καὶ ἐξω ποίεσθαι τὸ πρῶτον. καὶ οὐ μὴν ἐξ ἐκείνης
ἐτέτατο ἅπας, πειέχων τὴν γονὴν &c. rehear-
fed thus as if one pil of the outward
shel of an Eggeraw, in which the
humour contained in the inward
membrane is tralucent: very like
this was that liquour, moreover
red and round: but there were visi-
ble white thin Fibres contain-
ed in the membrane it selfe, on the
outward part discoloured with
blood like those that are bloodshot-
ten, in the middle of which was
discerned some slender thing,
which I conceived to be the navil,
and that by it, the Embryo did first
transpire, and from this proceeded
the

the membrane that totally invested the Geniture. And *Lib. de Carnibus*, he positively delivers, that the conceived, hath on the seventh day all parts requisite to integrity, and that an abortion of this septenary age, put in clear water to a subtle inspector, exhibits all the rudiments of the organical parts.

Felix Olater in quest. medic. quest.

1. Presents the septenary slips, which he hath frequently servey'd, thus. First, the Plastick, or *conformative faculty* obscurely ambuscadoed in the seed, issues forth & Marshals the nobler parts of the seed, which flowed from the three principal members of the Parents, into three bullous conglobations, or spherical apparitions, which are the rudiments of the Brain, Heart, and Liver; and rangeth the other adherent portions into Limbs, which attain perfection, (*viz. of delineation*) the first week so that the Embryo then elapsed, appeareth an Orbicular, concreted, informous masse, distinguished with these three globes.

The more exquisite inspection of

of *Sennertus* (that great Secretary to Nature) advanced his Scrutiny to to a nearer familiarity with this retired abstrusity of Generation: for in an *Embryo* , not many daies after Conception, effluxed, hee delighted his eyes with the full vision of these three Orbes, four other portions assigned for the arms and leggs , and two minute black spots, or atomicall puncto's in the *Surpeam Orbe*, which he (and on good reason) conceived to bee the delineated rudiments of the eies.

This being thus, it results a serene and Calme Truth, that the Conformation or Organization of the infant begins in the very punctilio or first moment of Conception. And this whispered to *Macrobius Lib. in somn: Scipion. Cap. 6.* his assertion; that seed, which does not within seven hours after injection relaps, is to bee accounted animated and enlivened. And of our faith was *Lod. Mercatus Lib. de Morb. Mulier. Cap. 6.* for hee concludes thus; when the sperme of both sexes is admitted into the wombe, by the vigorous and impregnating warmth of the same

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Of the Traduction of the

cherished, regulated, and not within seven hours effused, we are to believe that the woman hath perfectly conceived. For this reason *Hippocr. lib. de Genitura* instructs us, to compute the Conception, not from the seventh day; but from the intromission, and retention of the Geniture.

1. *Tertul. Lib. de Anima.*

Neither are we destitute of the Sovereign hands of reverend Divines to erect this our opinion. For *Tertullian* concludes *in ipso & ex ipso feri hominem; & vium esse a primordio*

2. *Gregor. Nyssen. Lib. de An. & resurrectione.*

semen & Gregory Nyssen: posteriori rem esse originem Animarum, ipsaque recentiores esse Corporum constitutione, ne nos sanamente præditus in animum induxerit; cum manifestum sit, nihil ex inanimis vim in sese habeat. movendi, itemq; crescendi, &c.

That there can be no other *Efficient Cause* properly assigned, which should attempt and finish the *Conformative Work*, but the Rationall Soul is clear from this; that the Adversaries to this assertion break that statute, *Entia non sunt temere, & citra necessitatem multiplicanda*, and incur

incur the præmunire of those, who on a mistake of *Arist. Lib. 2. de Gen. Animal. C. 3. Hominem primò vivere anima Vegetante, hinc sentiente, tertio Rationalem accipere*, absurdly dream a Trinity of Souls in the Human body.

Thus solid Reason, Experience made up with stubble, and multiplied observations, and learned Antiquity, Conspire in one firm triangular Basis to become our Assertion's supportment. On which to proceed to superstructure; though it might mount our speculation some degrees nearer Divinity, then any other pillar in the whole Theatre of sublunary knowledge: yet it would transgresse the rule of *Contraction*, which forbids the impossible society of *Enlargement*. Wherefore it is time we humbly resign it, to receive Ornament and perfection from the bounty of some more learned hand.

And thus have we glanced on the Soul in a thinn, blew Lanskip, and through the obscurity of her Operations. To gaze on the naked and

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lively glories of her entire *Nature*, such as it is when strugled from the Eclipse of *Flesh*, mortality is unqualified; and we must suspend, untill our estate of *Glory*. For *Solomon*, whose enlarged speculations soared in a Sphear, superior to that wherein our dull Conceptions flagg, could approach her radiant beauty onely by a faint reflexion, thus *wisdom cap. 7. ver. 25. She is the breath of the power of God, and a pure influence flowing from the Glory of the Almighty. ver. 26. She is the brightnesse of the everlasting light; the unspotted mirror of the power of God, and the image of his goodnesse. ver. 27: And being but one, she can do all things: and remaining in her self, she maketh all things new, &c.*

Wherefore let us turn over leafe, to our easier Lesson, the Body.

CHAP.

CHAP. III.

Of the Human Body and its Functions.

THE Human Body is, by the
 Eternall Architect, contrived
 and composed of Parts (1.) *Similar* ^{1. Similaris.}
 or simple, which are so subdivisible,
 that every minute, atomicall par-
 ticle is of the same substance with
 the whole: (2.) *Dissimilar*, Com- ^{2. Dissimularis.}
 pound, Organicall, or instrumental,
 which may be resolved, or undone,
 into lesser compound parts substan-
 tially different; as the Hand may
 not bee divided into other hands,
 but into Bones, Muscles, Veines,
 &c. To the Similar and Dissimilar,
 is required Unity and Integrity: to
 the Similar, considered distinctly,
 is required a just harmonious Tem-
 per: to the Organicall is required
 decent Composition and comely
 Conformation; which according to
 the Variety of Actions, in each di-
 stinct member is various and seve-
 rall.

The Temperament, Crasis ^{Tempera nen-} or ^{tum quid?}
 E 3 Con-

Constitution, is one moderate, harmonious, actually simple quality, resulting from the intense degrees of the four first Elementary qualities, by mutual Action and Passion in Commission, refracted and allayed. And this is double, (1.) that which belongs to the Body. *quatenus* simply mixed and Compound: (2.) that which pertains to it, *quatenus* Animate and living. For in death, this vanishes together with the life: but in the Carcase (untill its universal resolution by putrefaction) the parts, a long time, Conserve the former.

Though this temper of living man, which results from the harmony, and determinate Conspiracy of all parts, be Hot and Moist; and life subsist in the same materiall principles: yet there is framed a great variety of parts: of which the most exquisite in Temper is the skin, especially that of the Hands.

1. In the Classis of Hotter parts is first ranked the Heart, 2. the Liver, 3. Spleen, 4. Flesh of the Muscles, 5. Kidnies, 6. Lungen, 7. Veines, 8. Arteries

8. Arteries, 9. The softer oleaginous Fat or Grease, 10. The harder Fat or Tallow

2. The colder are, 1. the Bones, 2. Cartilages or Gristles, 3. Ligaments, 4. Tendons, 5. Nerves, 6. Membranes, 7. Spinall Marrow, 8. Brain.

3. The moister are, 1. Fat, 2. Marrow of the Bones, 3. Brain, 4. Spinal Marrow, 5. Testicles, 6. Duggs, 7. Lungs, 8. Spleen, 9. Kidneies, 10. musculous Flesh, 11. Tongue, 12. Heart, 13. Softer Nerves.

4. The dryer are, 1. Bones, 2. Ligaments, 3. Tendons, 4. Membranes, 5. Arteries, 6. Veines, 7. harder Nerves.

This Temper, proper to the body Animate consists of the Calidity, (1.) innate, or primitive, (2.) influxive or advenient. This Calidity ingenerate, subsists in the *Calidum innatum*. For by the *Calidum innatum*, we understand not a bare quality divorced from, but resident in its subject. This increated Heat consists of the implanted spirit, and primigenious Moisture and is (ex-
Calidum innatum.
Humidum radicale.
actly

Spiritus insitus.

actly defined) the radicall moysture exquisitely perfused, dashed, or incorporated with the implantate Spirit, and native warmth. For these three, viz. Heat, Spirit, and Originary Balsame, are by so subtile, and firm an Union, married; that they admit no possibility of divorce or Extraction. Which mysterious trine-unity, the amazed Philosopher. *Lib. 2. de Gen. Animal. cap. 3.* calls *Σῶμα ὅπερ ἐν τῶν καλεμένων στοιχείων, καὶ φύσις ἀνάλογος, ἕσα τῶν τῷ Ἀτρῶν στοιχείω.*

This Originary heat, disseminated and diffused, principally in the spermatick parts, called by *Arist.* *πρῶτα μέρη*: but chiefly radicate and seated in the heart (for the same reason by *Galen* surnamed *ἐστὶν τῷ ἐμφύτῳ θερμῷ*, *Focum Calidi innati*: Is the grand instrument, whereby the Soul doth enterprise and perform all her actions corporeal, and is the Taper of life, which, while drenched with a wealthy revenue of primitive oyle, diffuseth a vigorous and orient lustre. In the second or consistent age, when there is no

con-

contributing unto, but a prodigal waste of, the unctious, pretious fuel, begins to wane, and yeelds but pale and sickly flames: in the last age, or natural marasm, for extream poverty, winks out, and an everlasting midnight succeeds.

The influent conserves, fosters, and invigorats the congenerate *Calor influens,* heat, by mediation of the spirits, which are most subtle, volatile bodies, materially the most refined, meteorized, exalted part of the blood, associated with the Calidum innatum, become the proxim and principal instrument in the execution of all actions, and enable the faculties of the Soul to arrive at the second act.

That these spirits are the tie or obligation of the Faculties, and that the Faculties flow from the more into the lesse noble parts, by the coadjutancy of them, is a Doctrine popular, yet discordant to truth. For since the faculties are inseparable proprieties of the Soul; & she is diffusively equally resident in every part, we shall affront our reason,

reason, not to infer, that she is every where richly provided of her own efficacious faculties, and receives them not at second hand, or by the indigent way of mutuati-
on.

*Spiritus numero-
tres, viz.*

Great is the variety of opinions concerning these spirits, for one sect substracts them to a numberlesse unity, a second multiplies them to a superfluous plurality: a third (and most regular) computes a trinity, to which opinion, as in neereft cognation to verity, we adhere. For though the originary material of them all be the same, viz. the purified and most sublimed part of the blood: yet they admit a divers impressiō, and distinct form, according to the diversity of parts, wherein they receive elaboration and spirituousefse, and are comparated and destined to divers and distinct uses: and are only (1.) the Natural, (2.) Vitall, (3.) Animal.

I. Naturalis

Concerning the existence of the natural Spirit, many suspend their determination; and we, although
we

we admit it into the number of spirits, must acknowledge no small graduall difference betwixt it and the two other, neither do we concede it charged with the same office, that the other bear. Generated it is in the liver, contained in the veines, and is a subtle spiritual body, produced from the *'Aegōis* or rarefaction of the blood, and becomes a subministred material to the Vital spirit.

Which all men concede to be generated in the left ventricle of the heart, from the Natural spirit, flowing into the right Ventricle of it, there attenuated and more elaborate; and the aire attracted by inspiration, and dilatation of the Arteries. This spirit is not only in the heart, concurring with the innate heat of the same, the principal instrument of all its actions, but by the arteries diffused into the whole body, cherishes, excites, and imprægnates the congenerate heat in every part, whence it derives the appellation of *Calidum influens*. This also is the prime material of the Animal spirit. The

3. *Animalis.*

The partiality of some, to magnifie the prerogative, and enlarge the dominion of the Vital, would annihilate the Animal spirit, but since there is assigned a peculiar royal organ, the Brain, to its preparation and elaboration, and it is inservient to those noble uses, which the Vital cannot enterprise (for a member, though bountifully perfused, and vivified by the vital, yet destitute of the influx of the Animal spirits, suffers abolishment of sense and motion, as in the Apoplexy, Palsy, and stupor we cannot but discover) we have reason to acknowledge not only its existence, but sovereignty, and determine it to be the immediate instrument of sense and motion, generated of the purer vital spirit, translated by the Carotides and neck arteries, first into the basis, then into the substance of the brain, and of the aire inspired by the Nostrills.

Partes Organice

To the organical parts is required their peculiar singular constitution, which is a fit composure and

con-

connexion of the homogeneous parts, into one form convenient to the performance of their proper actions. And to this composition con-
spire (1.) a definit number of the parts component, (2.) a just magnitude, (3.) a decent conformation which includes (1.) a comely Figure, or exact proportion (2.) the cavities and fluces, (3.) a superficies smooth or rough, according as the nature of the part requires (4.) the situation, (5.) the connexion with other parts.

Thus far our pen has ranged in the blunt declarement of generals ; that is, of things common to all parts, and necessary to all actions in the body ; our Glue of method will henceforward conduct us into sharper angles, and the precise, though brief, enumeration of the particular parts, by which, and in what manner, the particular functions discharge their duties.

CHAP. IV.

Of Nutrition.

*Facultas Vege-
rativa.*

And since, by the Law of Nature, it is ordained Guardian paramont of our minority, and obtains situation, as in the lowest region of our body: so also at a nearer distance to our knowledge we should invert the method of Life, Anatomy, and Reason, not to assigne the Van of our succeeding lines, to the vegetative faculty

Under this are comprehended the subservient faculties (1.) Nutritive, (2.) Augmentative, (3.) Generative. And first concerning Nutrition and Augmentation. Since these mutations arise from the extraneous accession of Aliment, and that at first application is heterogeneous and alien to our substance, that it may be elaborated, and subdued to a qualification analogous, and an aptitude for assimilation, it must first suffer the impressions of many concoctions.

And

And this concoction is (1.) private, which is made in every singular part. (2.) Publick, which is ordained for the common use of the whole body, and is chiefly performed in the stomach and spleen. *Concoctio.*

The first digestion therefore is made in the ventricle or stomach, which for this reason is endued with a twofold appetite, (1.) Natural, whereby it is provoked to the acquisition of aliment, sufficient for it selfe. (2.) Animal, which excites and stimulates it to the affection and admission of provision, for the supportment of the whole body, and instauration of the threefold substance, which the uncessant activity of our native chymistry devours. *Appetitus.*
1.
Naturalis.
2.
Animalis.

For when man, to lenifie the sharp vellication, and silence the convulsive importunity of hunger, receives in food; the first preparation or alteration of it is made in the mouth, for there it undergoes manducation, fraction, or contrition by the teeth, which for this reason (though they concur to the *Manducatio.*

Dentes.

the formation of speech also) are given to man, to the number (in most practical constitutions) of thirty two, in each jaw sixteen, some whereof are called incisores, Cutters, others canini, dogs teeth, and the remnant Molares, grinders; the cutters or fore-teeth, are foure in each jaw, the Canine, two, the grinders ten: Moreover the meat is altered by the permistion of the salivous humidity contained in, and by the heat of the mouth; and being thus bruised and masticated, it is immediately by the auxiliary motion of the tongue, detruded by the then gaping throat, into the stomach: This thus prepared, the stomach by the ministerial Contraction of oblique Fibers, welcomes with close embracement and coarctation, and firmly retains, until by its concoctive faculty and proper heat, it be transformed into a masse, or consistence, not much unlike the cream of a decoction of blanched barley, which is called the Chylus.

*Deglutio.**Chylificatio.*

The Chylus thus exquisirely
Cooked,

Crooked, is by the Pylorus Janitor, or inferior orifice of the stomach, discharged into the intestines or guts, and by their immutative action, attaines one degree more of elaboration and fermentation. The intestins are double or rather of *Intestina.* two sorts, (1.) Thin, which are three, viz. 1. *Duodenum dodekadaktylon*, or gut, of twelve fingers length; (though in the minorated & dwarfish race of man in our sickly age, it be found far short of that measure) then *Jejunum*, or empty; thirdly, the *Ileon*, or circumgyrated gut. (2.) Crass or thick, which are three also; First, the *Cæcum*, or blind; Secondly, the *Colon*, or Collick; Thirdly, the *Rectum*, or straight gut.

But since no meat, though the *Excrementa* purest, can be all converted into *primæ Cœctionis* aliment, but yeelds some dregs and excrementitious residence, altogether uselesse to the nourishment of the body: Choice nature like a subtle Chymist, in this first, as in both the other concoctions, extracts the benign and wholesome

F parts

parts, but rejects the unprofitable and fæculent: viz. the thinner and lixivious by urine, the groffer and terren by stool.

*Exclusio Fæ-
cum alvi.*

The exclusion of the fæces is done, partly by the intestines, in their superiour parts, contracting and coangustating themselves by the circular and transverse Fibres wherewith both their inward and outward coats are furnished; and partly by the mutual aid of the Muscles of the Abdomen, by which the belly is compressed.

Vrina materia.

The thinner aquosity, or tartareous lixivium, is not presently ex-cerned, but incorporated with the Chylus, becomes the vehicle to it, whereby thinned and diluted, it may with the more ease, and lesse danger of obstruction, permeate, or glide through the narrow veines of the mesentery and liver.

Concoctio.

The first concoction thus absolved or finished, the Chylus is, by the vermicular exuction of the lacteous, or milky slender veines, which in infinite number are with open orifices inserted into the intestins

testines, attracted, predisposed to sanguification, and (per *Ανάδοσιν*) by distribution, convey'd to the Liver.

But that the milky liquor may *Lienis Vfus.* arrive at the Liver, the more pure & defecated, in its journey thither, the Crass and faculent part, together with the lixiviated serosity, is extracted by, and by the splenic branch, derived into the spleen, which converts it (that is, so much of it as the spleens Hæmatopoiectick power can conquer, and the refractory matter submit unto) into blood for the maintenance of it self, and the other vulgar parts in the lower region. And thus the spleen doth not only drein and purifie, but is also enriched with the faculty of sanguification, and doth generate blood, though courser and more fixible then that of the Liver: But the remainder which is wholly excrementitious and unconvertible, is seclused, partly into the Hæmorrhoid veines, partly into the trunc of the Port vein, and partly by the splenetick arteries.

The Chylus, by the official selection

Sanguificatio.

lection of the spleen, thus clarified is delivered up to the Liver, and by the transubstantiating Hæmatopoesy thereof, perfectly metamorphosed into blood, which from thence by the ascendent, and descendent trunc of the hollow veine, and its capillary disseminations, is by universal distribution communicated to all parts of the body.

Bilis Flava.

But as in every concoction, so in this of sanguification, there rebound two invincible superfluities, (1.) Choler, or the fiery excrement, which is collected into thee *νῆες χολήδοxes* bilious receptacle, or gall, and (after a convenient intervall of time) from thence, through the cholerick chanell, excerned into the duodenum gut, becomes the bodies natural glyster, and by its acrimony, extimulates the bowels to the exclusion of ordure. (2.) The salt whey, or lixiviated serosity, which is through the emulgent veines, sucked in by the Kidneys, in them percolated, and from them discharged through the Vreters, into the Urinary receptacle, or bladder.

bladder, and then called Urine. *Serum.*
 For the Urine is nothing else, but
 the Aquosity or serous Humidity of
 the Chyle, impregnated or satisfied
 with the superabundant and indi- *Urina.*
 gestible salt of our diet. And this is
 familiar to vulgar disquisition, not
 onely from the affections and symp-
 tomes occasioned by it; but from the
 large quantity of salt drawn of
 Urine, when the aqueous humidity
 is Evaporated.

The blood, which for the generall *Sanguis.*
 sustenance thereof, is distributed in-
 to the whole body; although con-
 tained under, and managed by one
 single form; yet disparted is Hete-
 rogeneous, and the more benigne
 and temperate division of it is
 blood properly and distinctly so
 called; the igneous or hot and dry
 is called Choler; the Aqueous or
 cold and moist is called phlegme;
 the Terrene or cold and dry is call-
 ed Melancholy. And of all these,
 there is no part Excrementitious or
 unalimentary; but (while under
 the wholesome Government and So-
 veraign Lawes of Eucrasie) is
 F 3 wholly

1. *Temperatus.*
2. *Biliosus.*
3. *Melancholicus.*
4. *Pituitosus.*

wholly digestible and nutritive.

Circulatio sanguinis. de qua vid. Epist. Walai ad Thom. Bartholin. & Lib. doctissimi nostr: Anatomici Guliel. Harveij Angli.

This Blood or Sovereign Nectar, being Circulated, a voyage or two, through the numerous, slender meanders, and Capillary divarications of the Veines and Arteries, is waisted to each individuall part: according to the Crasis of each distinct part, admits a peculiar distinct impression: and is at length transubstantiated and assimilated.

Humores Secundarij.

But since in this Elaboration, the blood undergoes successive transformations; Philosophy conced's the Generation of four secondary Humors succeeding each other in existence: and that the blood by these four mutations doth gradually ascend to Assimilation. The first of these Humors is called (assuredly the first Imponent had no very large nomenclature, since he was driven to assign it this name) *Anonymos*, Namelesse, the second is called *Ros*, the Dew, the third *Gluten*, or the viscid & glutinous, the fourth *Cambium*, because it exchanges its own nature for that of the part to which it is applyed.

1. *Innominatus.*

2. *Ros.*

3. *Gluten.*

4. *Cambium.*

And

And in this last, and most exquisite Concoction also, there remains a pleonasmus, or redundancy of excrements, the one whereof are those strigments and sordid adhæ- *Strigmenta.* sions to the skin: the other is that watery ferous matter, which is partly discussed, *per,* Ἀδύλον διπνικῶ by invisible transpiration, and partly excluded by sweat. *Sudor.* And for the Convenient Evacuation of these Excrements the skin was constituted porous and transpirable.

CHAP. V.

Of Generation.

AND^r God saw every thing *Generatio;* that he had made, and behold it was very good. This is the reason why the Creature so abhors dissolution, and endeavours to perpetuate its Verity, that is, conformity to the primitive idea in the supreme intellect. For so much better is it to be, though in the miserable Condition of something, than in the horrid

horrid obscurity of nothing; that (if some guesse aright) the Devill , though he might evade his torments, would not consent to his own annihilation.

But since this desire of eternity can, in sublunary Animals, be satisfied onely in part (for individualls must perish upon their own principle , and the same flames which kindled them to life must become their funerall Taper, and light them back to elements) Nature hath contrived a way to immortality , by the succession of the species propagated by Generation. And by this way man (whose ingredients confesse his mortality, not onely since, but before his Fall) relieves himself from totall regression into the oblivion of his first Chaos, and becomes superior to the tyranny of Corruption , by the immortality his issue.

Now this Generation or act of the Vegetative Faculty is performed by the seminality of Male and Female , inheriting fertility from the fruit-
full

Semen principium Generationis quid ?

full benediction of the Creator, in *Crescite & multiplicamini*. And this Generative materiall as made of the purest part of the blood and finest spirits both Vitall and Animall, flowing by the veines, Atteries and Nerves, into the Testicles; whereby their Spermatopoietick power it is converted into a white, spumous, spirituous substance, containing the perfect Idea of each individuall part.

Sennertus Lib. Inst. 1. c. 10. Qui semen femininum prolificum esse, vimque agendi in se continere existimant, ij mihi probabiliorrem defendere sententiam vi-

dentur. Et non solum eo nituntur quod semen femininum à similibus organis generetur, atque in venere cum eadem oblectatione excernatur. &c.

Nos statuimus utrumque sexum suum ad Generationem conferre. & neutrius sexus semen seorsim sumptum, sed utriusque conjunctum, & in utero Fœmina ritè unitum, esse semen prolificum & fecundum. &c. Plato.

This prolific Contribution *Aristotle* will not allow the Fæmale sex; but conceives their parts onely recipient for the masculine injections: but if wee consult our reason and our sence wee cannot but attest the contrary. For Femalls have instruments officiall both to spermification and Emission; are invited to, and

and act Congression with the same libidinous orgasmus, and pleasant fury, that the Males do: and their Seminary Emissions have been discovered to the ocular scrutiny of many. Neither do Male and Female differ in *specie*, but *sexu*.

Yet the single seed of either sex is not sufficient to procreation; but such is the institution of the Creator, that from the united Seminalties of Male and Female, as from two partiall Causes mutually contributing their Efficiencies, one principle and third totall Cause should result: from which one motion or mutation, though distinctly regulated, should advance to the production of the infant. For the efficiency of the masculine injection carries the greater stroak in Conformation, and is more virtuall then the Feminine.

Conception

The prolifick Ejaculations of both sexes received into the womb, are, by the proper innate productive faculty thereof conserved, and cherished; and the plastick Conformer, which lay concealed in the seed,

seed is called forth, excited, and impregnated, and begins the delineation or organization of the Infant. The parts first formed are the *Ordo Formatio-*
 two membranes, in which the more *nis.*
 divine and spiritual parts of the seed are inwrapped, that enshroud the Infant; one whereof is called the *Membrana Fe-*
 Amnios, or Lawn shirt, that immediately invests the Infant: the other *tus.*
 Chorion, or the girdle, which enrolls it, and is the supportment of the Umbelick vessels, and the cause of its adhesion to the Cotyledones, or cakes of the womb; which two involutions conjoyned, make the secundine or after-birth.

The feminine proliferation thus *Partes spermaticæ*
 expanded into filmy integuments, *delineantur.*
 and the new kindled Diety ensphered; the spermatick parts obtain seniority of conformation, and are spun out into a numberlesse number of fine slender filaments, which are the *stamina*, or groundwork of the solid parts, and (by a Texture farre too fine and cunning for the fingers of *Arachne*) woven into three bullous orbs or conglorations. Their

Sanguis maternus.

Menstruorum causa finalis.

Vasa umbilicalia.

1. *Vena umbilicalis.*

2. *Arteria duæ.*

3. *Urachus.*

Their delineation thus dispatched, the parts, by the nutritive apposition of the other fertile principle, the maternal blood, advance to increment and majoration. And for this purpose, the wise contriver of both worlds hath ordained, from the fourteen to the forty-fifth year of life, in eucratic bodies, a natural Plethora, and provident exuberancy of blood, in teeming and ingravidated women, to become the Infants sustentation: or in vacancy of prægnation, lest it overcharge and prove offensive, to be by periodick monthly conflux transmitted to the womb, and thence excluded.

The infant having from the mother received the rudiments of the sanguineous parts, the conformator frames a vein, two arteries, and the urachus, convening about the navill, and wreaths them into one contorted umbilicality, or quadripartit Navill string: the vein being a surcle of the Port vein, and inserted into the fissure of the Liver, is the Nurse provided to suckle the

the Infant. The arteries are two twinn branches of the Iliacall descendent Arteries, and the conduits by which the best portion of the arteriall blood and spirits is derived to the Heart of the new production: The Uracus is a derivation from the Bladder to the Navill. After parturition, the use of all these ceasing, they are by coalition and exiccation degenerated into Ligaments.

The age (or more truly the non-age) of the Infant in the womb is distinguished into the time (1.) of Formation, which extends from the Conception to the Calcitration, or quickening; and (2.) of Exornation or perfection, which is computed from the motion, to parturition. Others otherwise divide it into the time (1.) of formation, which in the account of Hippocrates lasts to the thirtieth day in Masculine, and to the fortieth in Feminine Conceptions. (2.) Of motion, which the vulgarity of Physicians concede to be in the third month in males, in the fourth in fe-

Tempus formationis.

Tempus calcitrationis.

females. (3.) of parturition, which is so various, that whosoever can definitively calculate nobis erit *Magnus Apollo*. The wise ignorance of *Hippocrates* confirms the incertitude thus. *Lib. de Alimento ad conformationem. Soles triginta quinque: ad motionem septuaginta, ad perfectionem ducenti decem. Alii tradunt ad formam 45, ad motionem. 76. ad exitum 20. requiri. Alii ad speciem 50. ad primum saltum 100. ad perfectionem 30. Ad distinctionem 40. ad transitionem 80. ad elapsum 240. &c.* But our experience establisheth, above the possibility of eviction, that no conception, which hath an immature exit before the expiration of 6 months partaks vitality. That the aborted issue of the seventh month usually lives, and may (if virile and vigorous) be cherished to maturity: & that Octomestral births are ever fatal, if the Doctrine of *Hippocrates*

*Hippocr. mei
Ζαρχών puer
septimo mense
natus, certa ra-
tione prodiit &
vitalis est, cum
is rationem &
numerum ex-
actè ad hebdo-
madas respon-*

dentem habet. Octavo autem mense natus numquam vixit. Novem autem mensium & dierum fetus editur & vitalis est; numerumque ad hebdomadas exactè respondentem habet. Quatuor nempe decades hebdomadarum; dies sunt ducenti & octoginta.

hold

hold good: but that most legitimate, happy, and frequent time of *Tempus partus.* Parturition, is the ninth month, and that the enixation, or delivery, usuall falls out between the fifteenth day of the ninth month, and the fifteenth of the tenth of the gestation.

But although in the observations of Physicians, there stand recorded divers undecimestrall, duodecimestrall, and elder editions: yet such overshoot mediocrity; and are to be filed in the legend of rarities, and sportive miracles of nature.

Though the months, by which we compute the Gestation, are solar; yet from these, the lunary conjunctions of twenty nine daies, and twelve howers, are not in the main much discrepant: neither is this laborious artifice confined to any certain minute, punctilios of time: For as the magnality of human resemimation is withdrawn from our comprehension; so is the indefinity of its time the discouragment of our determination.

CHAP. VI.

*Facultatum ordo
et dignitas.*

Of the Vital faculty.

*De facultatum
concentu, et
principatus or-
dine, videatur
Fernelius, lib.
5. de Animæ
Facultatibus.
Cap. 17.*

THe human Soul, though still an absolute Monarch, divides her Empire into a triarchy, and governs by the dispensation of a Triumvirate. The three Viceroyes, though they are absolutely distinct by their commissions, and keep their courts in severall Regions, are by so indissoluble a league and sympathetick allyance united, that the prosperity of one enlarges the principalities of the other, and the detriment of each, threatens the integrity of all. The natural or vegetative Faculty, claims superiority in order of procreation, as being governor of our minority, and commanding the first tertio of our life the vital merits preheminance in order of necessity, as transmitting a sovereign, and conservatory influence, without which, the other must, in the fleetest article of time be deposed for ever. The Anima
chal.

challenges supremacy in order of excellency, as regulating the diviner actions, sense and motion, to which, as to their perfection, the two former are destined. Thus every one of these rulers is supreme, and yet they are all equal.

The vital faculty, by proper actions, and peculiar Organs, absolutely distinct from the natural & animal, is seated in its own royal Throne, the heart. The 3 *θυσιασμοί*, Thumetick powers resident in the Heart, all comprehended under the name vital, are first the faculty Generative of the arterial blood and spirits, (2.) of the vital conservatory Heat. (3.) the Pulsifick or motive official to the former.

From the irascible faculty, stream all the Pathemata, affections, or passions of the mind, Anger, Mansuetude, Audacity, Fear, Hope, Despair, Dejection, or Prostration of the spirit, Joy, Sorrow, and others of the same Classis, that are either compounded of, or dependent on the former: Of these passions, some are performed *materialiter, seu per modum*

G causæ

Facultas Vitalis

Fac. Irascibilis.

Animi Pathemata.

causæ efficientis, by expansion, or excentrick motion of the vital Heat, Blood, and Spirits; of this order are Anger, Joy, &c. others by concentration of the same, as Fear, Sorrow, &c. but formaliter, all are nothing, but the motions of the Appetite, either in prosecution of the delectable and friendly, or flight and retreat, from the odious and offensive object, of which the former causeth an expansion, or circumferentiall salley, the latter a retraction or centrick retreat of the vital blood and spirits: But these appetitions, or irascible and concupiscible motions cannot be executed, but the agitation of the Heart, Arteries, and fervent spirituous blood. From this we receive satisfaction, why the *Facultas Superioris*, of necessity hath its residence assigned in a part of the hottest temperature, and endowed with the power of perpetual agitation.

Cordis Situs.

The situation of the heart is (though vulgarly deluded by the sensation of its pulse, and the sinister declination of its mucro, or cone

Of the Vital Faculty.

83

cone, opinion it to be placed in the left side) in the center of the body, if in our measure we except the thighs and legs; and its Basis or Center, fixed in the middle of the Thorax, or middle region of the body, that from it as from a plentiful fountain, the vital Heat and spirits may be promptly diffused into the whole body.

The ventricles, cavities or closets *Ventriculis* of the heart, are two, the right and left, the right does by Diaſtole or dilatation, ſuck in blood from the gapeing oſtiary, or floud-gate of the aſcendent hollow vein, by its intenſer fire, cohobate, refine, and rarify it; the more ſubtile and meteorized part whereof, is, through the Foramina, or capillary perforations of the ſeptum, interſtitary ſkreen (which notwithstanding *Columbus, Spigelius, Hoffmannus*, and our *Hippocrates*, Doctor *Harvie* will by *Septum interſtitium.* no means admit of) or partition wall betwixt both ventricles, tranſcolated into the left ventricle; the other parcel paſſeth by the *Vena Arterioſa* into the lungs; and one ſmall

G 2 portion

portion of it converts into the Aliment of the Lungs, the remainder is transported by the *Arteria Venosa*, into the left Chamber of the heart.

cardis motus.

1. *Diafole.*

2. *Systole.*

These businesses (which we are sorry to confesse more the employment of our wonder, then our knowledge) are transacted by a certain admirable and uncessant motion of the Heart ; whereby, in the diafole, the extremities of it are contracted, and the mucro or point ravelled up towards the Basis, so that the Heart in longitude abbreviated, and in latitude expanded: but in the Systole or Compression, it is by coangustation of the sides enlarged in longitude, and diminished in latitude.

But since to the regeneration of vitall spirits and Arteriall blood are required two necessary ingredients, Venal blood, and the Aer :: and these two materiall principles cannot, by one and the same motion, bee attracted : besides these two Ventricles recipient and elaboratory, there are superadded two notable

ble Cavities, (Christned by Anatomists *Auriculæ* processes or super-^{*Cordis Auriculæ.*} structions) on each side one, extending to the superior part of the Ventricle: The uses whereof are (1.) to inspire Aer for the refocillation or recreation of the vitall spirits, and to bee the Hearts promptuaries or storehouses to receive the blood and Aer that they may not *Abesse*, with too suddain an impetuosity rush into the heart and cause suffocation: (2.) to fortifie and guard the *Vena Arteriosa*, & *Arteria Venosa*, to which they are adjoyned: (3.) according to the doctrine of *Hippocrates*, *Lib. de Corde*, to serve the heart in stead of a Fan or Refrigeratory; for they are therefore distended because imple-
 ted; whereas the Heart, by a motion quite contrary to this, is therefore imple-
 ted because distended.

That the Heart in its Contracti-^{*Pericardium.*} on and Expansion might be guarded from impediments, Nature hath constituted it a capacious, membranous, domicilium or Tent, called the *Pericardium* or Purse of the heart; the use whereof is (1.) to de-
 fend

send the heart in its motion from the shocks of the circumjacent parts (2.) to contain the serous Humor, wherein as in *Balneo*, the heart is refrigerated, moistned, and its motion facilitated.

Vasa.

1. Vena Cava.

2. Vena arteri-
alis.

Moreover, since nothing can have ingresse to, and regresse from the heart, but through Conduits and Sluces: there are for this purpose: ordained four conspicuous vessells: in the Basis of it, two in the right, and two in the left ventricle of the heart: in the right are the *Vena Cava* & *Vena arteriosa*: in the left, *Arterias magna* & *Arteria Venosa*. (1.) The hollow veine with an ample and patent orifice looks into the right sinus of the heart, and into it drops blood for the generation of Arteriall blood, the vitall spirits, and provision for the Lungs. Others, notwithstanding, opinion that the blood redistilled and elaborated in this preparatorie, is immediately distributed through the whole body. (2.) the *Vena Arterialis* is the derivatory of blood from the right ventricle of the heart, to the Lungs.

for

for their nutrition, and the principall materiall of the vitall spirit and blood: (3.) The *Arteria Venosa* con- *Arteria venalis.*
ducts the Aer extrinsically advenient and prepared in the Lungs, and the blood by the *Vena Arteriosa* effused from the right, into the left ventricle; and expells the fuliginous Exhalations, and at the same instant conveies a parcel of the vital spirits into the Lungs: (4.) The Aorta or *4. Aorta.*
grand Arterie dispenseth the vitall spirits, and Arteriall blood, after their Exaltation in the left ventricle, into the whole body. These four Sanguiducts, *Hippocr. Lib. de Corde* calls πύλαι φύσιος Ανδρώτους, καὶ οἱ ποταμοὶ &c. the Fountaines of Human Nature and fructifying rivulets where-with the purple Iland is irrigated.

But since each of these four Considerable vessels is ordained to a double use: *Ex. Gr.* the *Arteria Venosa* doth not onely suck in Aer from the Lungs, and inspire it into the left Ventricle of the Heart; but also returns up the vitall spirit; and Ar- *Valvula.*
terial blood to the Lunges, and bel-
G 4 cheth

cheth out the smoaky Exhalation : that the substances admitted into the Heart, may not rebound back by the same way they entered, before they have attained full trāsmutation, and intended perfection; or what is effused from the Heart may not remeate into it again, the omniscient Contriver hath annexed eleven Values or Flood-gates to the orifices of these vessels, two to the *Arteria Venosa*, and three apiece to the other three.

To the *Vena Cava* are signed three, called *τρίγωνοι*, tricuspides, three-pointed Values, that look inwards, that the blood may have intration into the right Ventricle, but no regression into the hollow veine: (2.) Contrarily, those of the *Vena Arteriosa*, named, from their figure, *Sigmoïdes*, Semi-Cynthian Values, shut inwardly, but open outwardly, that the blood may have Eructation, but be denied readmission: (3.) the two Janitors allowed to the *Arteria Venosa*, being conjoined represent an Episcopall Mitre, open outwardly, and shut inwardly, and forbid

bid the reflux of the emitted vitall spirit; and fuliginous expiration: (4.) Those affixed to the Grand Arterie, are three semicircular or halfmooned, look outwardly, and occlude inwardly, that the Arteriall blood and vitall spirit powred out for the vivifying supportment of the whole, may not remeat into the left Ventricle.

The *Ductus*, Pipes, or Conduits, *Arteria.* through which the heart transmits vitall heat, spirits and blood to the whole body, are branches of the Aorta which are also dilated and contracted, and by this motion draw in the Ambient Aer through *Pulsus quid?* the spiramina or slender evaporatories of the skin; and distribute the vitall spirits, and arteriall blood; which motion of the heart and Arteries is called the Pulse.

Which consists of two Contrary motions, a Diastole or dilatation, *Arteriarum.* & a Systole or Coangustation, after *1. Diastole.* a momentary respite or articulate intervall of time, mutually succeeding each other. (1.) in the Diastole the

2. *Systole.*

the heart is implected with Aer and Blood, drawn in from the Lungs by the *Arteria Venosa*: and the Arteries through their subcutaneous orifices attract a convenient quantity of the environing Aer. (2.) in the Systole the heart, by the great Arterie, delivers out vitall heate, and Arteriall blood, invigorated with vitall spirits, for the Conservation of all, and by the *Arteria Venosa* discharges the smoky effluviations, and the Arteries by their small ostiaries squeeze out their vaporous superfluities; which action is termed *ἄσματος διαπνοή*, insensible Transpiration.

Pulmones.

Again, in the regard the inspired Aer must part with its intense frigidty, be refracted and suffer some graduall mutation, before it penetrate to the heart; the prudent Conformer hath instituted Respiration, provided *πνεύμονες* Respirators. Lungs, as the præipuous Organs thereof. For although the Thorax and other neighbouring parts may be allowed causes *sine qua non*, and contribut their inserviency to respi-

ration, *modo secundario*: yet primarily, as from its Causator this motion flowes from the Lungs; to which, as well as to the heart and brain, by the inviolable Charter of Nature, is granted a peculiar innate power to dilate and contract themselves:

* which in living Anatomies, and vulnerary perforations of the Thorax, may with easie animadversion be confirmed. For neither is Respiration a motion arbitrary or dependent on the injunctiō of our wil; nor are the Lungs dilated *ob fugam vacui*, (which would accuse Nature of the want of forecast, and shifting into one absurdity, to avoid another) when the Thorax is distended: but they are moved by their owne inherent virtue respiratory, and the Lungs and Thorax are therefore in one, and the same instant moved, because they conspire to one and the same end: But that this might be with the greater convenience performed; and the Lungs have a room accomodate to their motion: the Animall Faculty, at the same instant moves the Thorax.

These

** Et si merito concedamus hanc, de Pulmonum & thoracis motu, litem nostro arbitrio discerni non posse: tamen motum Pulmonum, ab insita iis facultate, non thoracis motum sequi, proficisci, & veritati maxime consentaneum videtur, & peritissimorum Anatomicorum observationibus ac rationibus confirmatur.*

These two motions keep time together, and observe so even a proportion in Expansion & Coarction, that some have thence hinted the error, that they are regulated by one and the same faculty: Neither are the lungs distended, because repleted, as a bladder by the inflation of Aer, but, since there is no inflatoric instrument, that should from without puffed Aer into them, are therefore repleted, because dilated, as in a bellows, the cause of its repletion is dilation.

This *Αναπνοή*, Respiration, is compounded of two contrary successive motions: *Εισπνοή* Inspiration, and *Εκπνοή* Expiration, and a short quies intervening. (1.) In inspiration, the Lungs and Thorax being dilated, the Aer, by the mouth and nostrils is drawne in for the fanning and refrigeration of the heart, and generation of the vital spirits. (2.) In Expiration, the Lungs and Thorax being compressed, the Fuliginous Excrements (which in winter, when the intense frigidity of the surrounding aire condenses them, are visible)

1. *Inspiratio.*

2. *Expiratio.*

ble) are by the mouth and nostrils excluded. And for this reason, that both a plentiful proportion of Aer may be sucked by, and contained in them: the Lungs in magnitude proportionably, exceed any other of the Viscera, and have obtained a porous, spongy substance.

Excrementa
Fuliginosa.

The Fistula or Cane that conveys the inspired Aer from the mouth and nostrils into the lungs, is the

Aspera Arteria.

Aspera Arteria, or *Trachea*, with

our Nation, the Weazon, or Wind-pipe, whose superiour part, from the Larynx to the Bronchi, is one single trunc; but the inferior is de-

Bronchi.

varicated into innumerable smaller branches or disseminations (by *Hippocrates* surnamed *Syringæ*) and distributed into all quarters of the lungs for their total impletion with Aer, which the vessells extended from the heart, receive and defer into the ventricles of it.

And since we cannot, the shortest account of time, survive the defect of Aer, both to ventilate and allay the fervour of our cordial fire, which would else intend to conflagration

Conformationis
ratio.

gration, and terrify our heart to Cynders, and to recruit our vitall spirits, so prodigally exhausted : This *Aspera Arteria* is contrived of many round, annular (or rather fig- moidall) Cartilages, connexed by intermediate ligaments, that by this structure, it might be alwaies kept open, and we secured from strangulation, which immediately succeeds its concision.

But that our deglutition might not prove our destruction, and no part of our meat, and no more of our drink, then may only be termed a guttulous irrigation, might drop down into the Trachea, or rough arterie, to the hazard of suffocation; providence hath in the upper part of it, framed the Epiglottis, which

is a soft Cartilaginous flap, in figure representing a tongue, or (if we applaud the fancy of *Hippocrates*) an Ivy leafe, and when we swallow down our meat, shuts the chink of the *Aspera Arteria* : For every morsel that descends this forbidden way

Epiglottis.
Καὶ διὰ τοῦτο
ἡ χωρεῖται, ἥ
πίτον ἐς τὴν
πλευμονα,
ἀλλ' ἐς τὴν
κοιλίαν, ὅτι
προσαφής αὐτῷ
ἐστὶν ὁ σόμαχος
ἀνθρώπου αἰ
καὶ
χωρεῖται ἐς ἐκεῖνον καὶ αὐτὰ ἐπικεῖται τῇ ἐνέργει τῷ πλεώμενος
ὡς περ κισσοῦ φύλλον. Hippocrat. de Morb. Lib. 4 circa finem.

way

way, hath a dangerous haughtgust of *Anacreons* grape, and denounceth the same harsh fate. Had we said crosse fate, the Epithite had been more genuine, and would have cleerly hinted the inversion and preposterous rarity; for how unusuall and perverted an accident was it, for the invincible stupiditie of a Poet to flow from his inspiration, & a volatile Muse, to be condensed into eternal dulnesse by the sprightly fruit of the Vine; the same inspirer, whose active flames had so often warm'd and exalted her to the sublimity of rapture.

Moreover, since the Thorax, or *Therax*, Chest, is, partly the Munimentum or Fortresse erected for defence and safeguard of the vital parts, and partly an instrument to respiration; it must not have been built totally *Carneous*; for flesh were too soft a materiall to resist the assaults of external injuries; nor totally osseous, for bones would admit no such flexure as is required to respiration; wherefore it is composed of twelve pair of Ribs, or arcular bones,

bones, to which, that they might be bent and relaxed, in dilatation and constriction, there are adjoynded sixty five Muscles, whereof thirty two distend, and as many contract the Thorax.

Diaphragma.

But because no ribs could, without perverting the rules of Convenience, be planted in the lower part of the Thorax; that in this Region there might not want an Organ fit both for distention and Contraction, and also to divide the Vitall from the Naturall parts; there is a partition wall, or musculous and carneous interstitiary, therefore called *Διαφραγμα*, drawn transversly betwixt this and the lower region which in Expiration is elevated and in inspiration is depressed. And because, the Gullet, Grand Arteries and Hollow Veine, which in several transforations passe through the midriff, close to the Spine, may not by the perpetuall motion thereof suffer constriction and agitation: the Centre of it is membranous & nervous, but the periphery or Circumference Carneous, that so this part

Of the Sensitive Faculty.

97

may be lesse subject to Contraction, when the other perpetually ascends and descends.

CHAP. VII.

Of the Sensitive Faculty.

Conducted by the Constant man-
duction of Nature, and as-
cending by the same progressionall
degrees; by which she advances to
the Glory and Crown of her Endea-
vours, Perfection; we are mounted
to the supreme Orb of our Micro-
cosme: wherein, as their proper
Sphear, the Rationall, and sensitive
Faculties exercise their Semi-divi-
nity: and from whence, by their al-
most immaterial Agents, the Animal
Spirits, they transmit their more
then Elementary activity. And
herein, since the first part of our
Lecture looked, though by a pale
and faint reflexion of its actions, and
through the Chäos of obscure bre-
vity, on the Rationall Faculty: we
conceive it our duty to addresse our
H future

future speculations onely to the Sensitive; and observe how that governs and actuates the members of the body to the designs of Sense and Motion.

The two Fountains from which as from their primitive Originals, all the operations of the sensitive faculty stream, are (1.) the power apprehensive, (2.) Appetitive or Motive.

1. Vis Apprehensiva

The Apprehensive is that power, whereby we discern and distinguish of Objects present and absent. Under this are comprehended all the Senses, (1.) Externall, viz. (1.) the Sight (2.) Hearing, (3.) Tasting, (4.) Smelling, (5.) Feeling :: (2.) Internal, viz. (1.) Common Sense (2.) Imagination or Phantasy, (3.) Memory.

Externi Sensus

The Externall Senses residing in the Circumference of the body discern and censure Externall objects endued with sensibility, by their own act, without information from any other Faculty preceding.

And since Sensation is no simple action either of the Soul, or of the body,

body, singly and disjunctively considered; but resulting from the conjunctive efficiencies and concurrence of both: to the just performance of it are required (1.) a sensitive Soul (2.) an Organ or instrument, (3.) an Object, (4.) a Medium.

The first and chief requisite is *Anima*, the Faculty sensient, or ^{1. Anima sensitiva.} Effectrix: for this is ἐπιλέχεια per quam *Corpus Animatum sensibile extra se positum percipit*, Ἐ δυνάμει Αἰσθητικόν actu tale reddit; the power by which the Animate body perceives the sensible, Externall Object, and prefers it from the imperfection of sensibility in capacity, to the perfection of sensibility in act. For no sooner doth this Efficient or Causality take leave of her Concomitant the body: but the body compulsively retires back into the insensibility of its cold materialls, and can be reactivated by the information of no Power, second to that, whose look can speak the Rocks into Animation.

The secondary Causator necessary, is the Organ or Sensorium; for ^{2. Organum,} although in regard of Essence, the
H 2 Soul

Soul be equally omnipresent in every atomicall particle of the body : yet is it no where the Author of sense, but where it meets with the provision of an Organ. Again, although the essence of the soul be the same in the Foot, that is in the eye or ear : yet because in the Foot it is destitute of an instrument, it neither sees nor hears. The instruments of sense that we may interpret the thoughts of *Jul. Caesar Scalig. Exerciti* 297. Sect 3.) are (1.) the Spirits whose nature holds a large correspondency and near affinity to the Faculty in it self: (2.) the members, which are constituted in some similitude and Cognation to the objects: For the Spirits are subtle, invisible, and so exalted substances, that we may (by the favour of comparison) account them immateriall. Yet on these as on their proper recipient the ideas of sensible objects are impressed; and the instrumental members are but the Conductors and Vehicles of them towards the Objects. The members, although they are made up of many severall parts so

necessary, that the defect or vitiosity of the meanest, induceth abolishment, or depravation on all; yet is their one part above the rest advanced to the prærogative of being the precipuous and approximate instrument of Sensation, and there is in the particular Organ of every sense, one determinate similar part, in which the form of the determinate object is expressed: * and therefore is the Sensorium, if no way digressing from the integrity of constitution, confined within the circle of Analogy, and prærequisite proportion to its proper object, that according to the peculiar nature of the object, it may suffer a peculiar and identical alteration, and entertain the impression of the peculiar Idea, which, by intentional effluvia, or aporrhoeas streams from the object.

The third conspirator is τὸ Ἀισθητὸν, the sensible object, or more strictly, sensible diffusive qualities; for although in a randome acception, it be no impropriety to call the objects singular and corporeal substances, yet they strikenot the sense,

* Arist. Lib. 2.
de Part. An.
cap. 1. ἡ
αἰσθησις συν-
εργεῖται πᾶσι
ἐν ταῖς ὁμοιομε-
ρείαις, διὰ τῶν
αἰσθητῶν
ὁποιαῶν
ένος εἶναι γένος
καὶ τὸ αἰσθητὴ-
ριον ἐκείνου
δεκτικὸν εἶναι
τῶν αἰσθητῶν,
ἔστω.

3. Objectum.

quatenus substances, but as they are endued with sensible qualities, and contain in them the formality of sensibility. But since to every action is required corporeal contaction, and the object is very often at a large distance beyond the line of contiguity, removed from the sensorium: it is no idle quærie, by what manner, and by what medium, the object doth, beyond it selfe, invade the Organ? Our solution shall be the sober resolution of most heads of Mediocrity, that it is done by certain emanations and invisible raies, carrying with them the qualities, simulachra, or representations of the sensible objects, from which they are emitted. For sensible objects are not restrained only to the poverty and course operations of reall and materiall, but are enriched with the finer endowments of spiritual and intentional qualities: which are nothing, but the purer images of themselves, by subtile radiation, and tenuous continued effluviū flowing from themselves; and that there are such
 spiri-

Spiritual effluxions we cannot deny, unless we make invalid the chief inducement of belief, our experiences for in summer, when to temperate the æstuation of the Suns perpendicular embraces, we secure our selves in the gentle refrigerium and solace of the Groves (the best & most natural Vmbradoes) & recreate us by accubation, under verdant Arbors, if we wil but take the pains to observe it, we shal see our garments apparently infected with the green tincture of the supereminent leaves; and if we place a white linnen cloth, or fine white paper, collateral to a Venice-glasse, filled with Claret-wine, it will, in apparition, wear the crimson Livery of your wine: and many other examples (many whereof are enumerated by Scaliger, *Exercitat 80. Sect. 8. et exercit. 298. S. 3.*) do with Autoptical testimony establish, that the intentional qualities, or representative formes of sensibles, are by emanation, from their grosser materials, delivered at a distance.

Et in genere Artificialia specula hoc decent, quæ imagines visibiles etiam dissitarum rerum recipiunt.

These sensibles, in this abstracted *Sensibilia:*
H 4 notion

1. Propria.

notion accepted, are (1.) *idia pro-*
per, which fall under the compre-
 hension of one solitary sense, and
 hold no relation to any other; thus
 lucid and colorated objects are sub-
 ject to perception only of the sight;
 sounds are the business only of the
 hearing, Savors only affect the Gusto
 or taste, Odors the smell; and Tangi-
 bles concern only the Touch. (2.)

2. Communia.

κοινὰ Common, which are perceptible
 by all, or most senses; such are Fi-
 gure, Magnitude, Number, Motion,
 and Quiescence.

4. Medium.

Lib. de Anima:
 cap. II. text.

II. Α'θανόμε-

θα πάντων διὰ

τῆς φύσεως. & de

An. cap. 9. text.

89. τὸ ἐπ' αὐτῷ

πρόκειται τὸ

ἐκείνου

ἀνασθῆναι,

εἶναι κοινὸν

πάντων, &c.

The last coadjutor is a Medium,
 which *Aristotle*, seduced by the
 concurrents to, & manner of vision,
 by an infirm illation from a plurali-
 ty to an universality, concludes of
 uncontrollable necessity to all sen-
 sation. But, under favour of so mighty
 a Prince of knowledge, this asserti-
 on, though by undeniable truth it
 hold good in vision; and by proba-
 ble explication may be maintained
 in hearing, and smelling; yet how it
 can be made out in the touch, and
 taste, to which is required an imme-
 diate contact and corporeall im-
 position.

sition of the objects on their proper sensoriums, seems no easie problem, and threatens despaire of determination to the boldest inquiry.

Concerning that grand question with so much ardor of contention, banded betwixt the surly disciples of *Plato*, and the more passionate scholars of *Aristotle*; *An sensio sit tantum passio; an vero etiam actio?* whether sension be a meer passion, and nothing more then the bare reception of sensible species; or whether besids this admission, there be required also an action done by the sensator? We conceive it the duty of our method to supersede the nauseous enumeration of the arguments which are planted by each faction, to defend their own, and batter the adversaries opinion, and only to present that positive and verisimilous assertion, which may best deserve our assent: And this is it, that the object emitting the sensible image, or imaginary Idea, is not the agent, or active principium of sension, but doth by tender, and oblation of the sensible species, obje-

*Dari Externi-
 nes naturales
 suadere id vide-
 tur hoc ; quod
 aliqui , quoties
 volunt, abstracti-
 onem & aber-
 rationem mentis
 a Corpore pati
 possint. Cardan.
 de Variet. rerum
 & de seipso, &
 Facio patre id
 testatur, ac quo-
 ties vellent, ani-
 mis sic abreptos
 scribit, ut nullum
 omnino dolorem
 in eo statu sen-
 tirent. August.
 de Civit. Dei
 lib. 14. cap.
 24. Simile quid
 narrat de quo-
 dam presbytero,
 &c. Et Anima
 aliis rebus ita
 intenta esse po-
 test, ut speciem
 visibilem etiam
 oculo presentem,
 & vocem aures
 circumsonan-
 tem, oculo &
 aure sana non
 percipiat.*

objectively move the sense. Neither
 Can sensation be justly defined to be
 onely a passive reception, as may be
 evidenced by this, that very fre-
 quently, although the sensibles are
 passively admitted into the Organ
 yet is not the Organ actively dedu-
 ced into sensation, when the soule
 in a naturall Extasie withdrawess
 herself from the distraction of the
 sense, and neglects the Cognition off
 objects: but is also a determinate
 action performed by the Sensator ::
 whose dignity wee shall highly dis-
 parage, to deny it the prime activi-
 ty in its own proper businesse.
 More briefly thus; the soul so farre
 forth as it discernes, and gives
 judgement of the objects, may,
 with safety of reason, be said to be
 active: but so far forth as the species
 are conveyed to the sense, by ad-
 mission into the Organs, in which
 the soul affectively resides, it may,
 without danger of absurdity, be
 affirmed to be passive.

*Sensus Externi
 & tantum.*

That the Externall senses exceed
 not the number of five, is the resolu-
 tion of Philosophy, as uncontroll-
 able

able as generall; for five invincible reasons: for in Natures wide Amphitheatre, the Universe, are ordained but five simple bodies (and, for ought we know, no distraction ever fell on so wild an Alogy, and gross absurdity, as to dream of more) the Heaven and the four Elements; to which the senses by familiar analogy correspond; the sight (if we admit the doctrine of the sober Platonicks) claimes Kindred of the starrs, for its object is ἀστέρις, shining and not burning; the smell resembles the fire, for all Aromaticks confesse an Empyreuma and large participation of that Element, and therefore *Fragrantia, quasi Flagrantia*, is more then a Grammarians Etymology; the hearing, by relation to its object, which is Aëriall, is allyed to the Aer; the Tast, for the same reason, is cozen German once removed to the Water; and lastly, the object of the Touch derives it self from the dominion of Earth.

2. In the great All (that is so much as lies in the narrow sphear of Human comprehension) are discoverable

ble but five proper objects, viz. Colours, Sounds, Odors, Savors, & Tactile Qualities, and who will find more must get out of *Trismegistus* Circle, and hunt on the outside of the world for them.

3. The Mediums required to the production of sensation, are capable of alteration and predisposition but by five waies; which we must (such is the command of our method) with industry forget, and referr the disquisition of our friends to receive plenary determination from *Arist. Lib. 3. de Anima*.

4. There are no more, nor lesse then five senses necessary, *ad Esse & bene Esse vite*.

5. Experience, the grand inducement of our knowledge (on which we may most safely erect determination) witnesseth that no discovery hath or can point out more then five Organs, either in man, *μύρον ἐπαντων*, the perfection, and therefore the norma or rule of all sublunary creatures, or in any other Animal.

CHAP. VIII.

Of the Sight.

HAVING thus with temerity crowded through the conflux of Generalls, wee are admitted to particulars : and the sense, which (deservedly) first arrest the eye of our observation, is the sight. For although that immortall controversie betwixt the two grandees in the common-wealth of learning, the Philosopher and the Physician (two happy starrs in conjunction, but opposed, they portend a deluge of Barbarisme) whether is more excellent the sight or touch, depend in æquilibrium; yet have we thought it no impeachment to our profession, to side with the Philosopher, and vote for the primacy of the sight, as by unquestionable right, and the prerogative of Natures bounty, properly belonging to it, witnesse these subsequent considerations.

I. This demonstrats to us more variety and differences of objects then
any

any other sence; for all (at least most) bodies appear clad either in the livery of some one single colour or in a variegated and versicolour dresse, and so fall under the perception of the sight, but not of the touch.

2. Besides its own proper object, it runs (with unlimited commission) through all the common ones, and surveyes the Figure, Magnitude, Number, Motion, Site, and Distance of each visible; so that from hence should any derive the pedigree of all Arts and Sciences, and affirm that from this Divine sence, as from the protoplast, all honorable inventions (those aërial ones of Musick excepted) have received their fruitful productions, and successive multiplications: we confesse we could not disallow the probability of the Genealogy.

3. Vision is performed by a motion, swifter then that of ill-spent time, & even at the remotest distāces; & for this reason, should we character the sight to be the shaddowes or representative reflex of the soul, as that

that is of Divinity, the resemblance would be our warrant; for as this comprehends the Idea's of things, exalted above the contagion of their materials, so that admits the incorporeal and intentional images of the objects: as the one is capable of two contraries, at one and the same instant of time, and distinguisheth betwixt true and false; so the other at once discernes white and black, and while it receives one contrary, is not hindered from the perfect dignotion of the other: the intellect enjoys *Βέλαιον*, a deliberation and arbitrary power of election and resolution, which submits to no compulsion; the sight in its action is uncontrolled, and boasts a liberty, which the indulgence of nature hath conferr'd upon it, but denied to the younger brethren, the other senses; for the ears stand ever open to the admission of sounds, and the nostrils have no guard, but what they borrow from the hand, to protect them from the incursion of ingrateful and offensive odors; but the eyes are fortified with

with counter scarfs, or curtains, wherewith, at pleasure, they may repulse the invasion of the destructive object.

3. The sight by its *Antiqua*, exquisite and infallible dignotion, and certitude, contributes more to our intelligence; for a Canon it is in the Civil Law, worn into a proverb, *plus valet oculatus testis, quam auriti decem*, the testimony of one eye-witnesse carries more assurance and authority, then of ten that assume their information from the eare. From these and other reasons of equal perswasive validity, we adventure to deduce the error of *Theophrastus*, who mistook the sight, for the essence of man, and that laps of *Anaxagoras*, who affirmed that vision was the prime end of our creation.

Visus elogium.

How wonderful are the works of thy hands; Oh Lord! were but the Persian learned in the Opticks, how soon would he become this senses Profelyte, with blushes red as his angry deity, forgoe his fond Idolatry of the Sun, and addresse his

his more pardonable devotiō to the more glorious Luminary, the Eye, wherein the image of Divinity is far more resplendent; for the Sun irradiates the world, yet without comfort or benefit to it selfe; but the bright Gemini of the lesser world, do not only illuminate the body, but inform and delight themselves in the beauty they discover: When the Sun goes down to wake the Antipodes, and leaves our Hemisphear benegro'd, we can delude the Tyranny of Night with Tapers, and kindle an artificiall day; but when once our own lights suffer extinction, what an eternal blackness surrounds us? from which no beams, but those of the Sun of glory, can relieve us, & which, in this life is an affliction, that anticipats the horid opacity of the Grave. and had not the purblind Soul of *Mornus* been more ignorant, then his calumny would have made Nature appear, he had discovered those windows in the eyes, which his blasphemy proclaimed deficient in the composure of man; or according

I to

Mirantur Oculi, a tamant, concupiscunt, Amoris, ira, furoris, misericordiae ultionis indices sunt; in audacia prosiliunt; in reverentia subsident, in amore blandiuntur, in odio efferantur, gaudente animo hilares subsident, in cogitatione ac cura quiescunt, quasi cum mente simul intenti, &c.

Laur. Lib. de Sens. Org. 11. cap. 3.

Visus

1. *Definitio.*

2. *Organon.*

to the charracter given them by *Alexander the Peripatetick*, ὁπαδὰ τῆς ψυχῆς καὶ τῶν ἡθελῶν, they are the mirror of the Soul, wherein all her closet conceptions, whether peaceful or passionate, are written in the spiritual alphabet of looks, and intuitively legible; witnesse the mute intelligence of Lovers, who can converse like Angels, and conceive each other by glances, that significantly deliver their apprehensions, and carry with them the notion and contents of their desires.

But we reduce our pen (that had not wandered, but in hope to have met with some encomium, that might have run parrallel to the dignity of this learned sense, and so expiated the digression) back from this licentious seduction, and chain it to the definitive expressions of more severe Philosophy.

The sight is an exterior sense, that receives and discernes external visible objects, by the ministration or benefit of the eye, which is the adæquate organ of vision.

This lesser microcosme, the eye,

is

Of the Sight.

115

is the instrument of sight, com- Oculi.
posed of six Muscles, three (the
externall and conjunctive except-
ed) Coats or Membranes, three
Humors, two Nerves, very many
Veins and Arteries, and a large
quantity of Fat: Of these parts, we
shall only meet with so many as
immediately are officiall to vision,
and the first that among them sa-
lutes our observation, is the *Cornea*
Tunica, Horny Membrane.

This coat, being originally a de- 1. *Cornea Tunica*
rivation, or proceſſe of the *Dura* ca.
meninx, and enshrining the whole
eye, wears the Epithites *Κερατοειδής*,
Corneous and *Σκληρώδης* Hard, from
the manifest similitude betwixt it
and a Horn, shaved to a transparent
thinness; for in substance it is (1.) 1. *Perspicua*:
perspicuous or tralucid, that the
visible species may have admision
or transitus into the eye. (2.) *Ἀχρὸς*, 2. *Ἀχρὸς*.
void of all colour, that the images
may permeate into the eye, clad in
their native purity, and not dis-
guised with the infection of any co- 3. *Durus*
lour but their own : (3.) hard,
that it may the better oppose exter-

4. Densa.

nal injuries : (4.) dense, that the images after progression through a thinner medium, the Aer arriving on a thicker medium, this Membrane may be refracted; for we are to observe in general, that since vision is made by refraction, and refraction is made for the variety of the diaphanum; that all parts of the eye, that are immediately inservient to sight, do performe their office as they are tralucide and perspicuous, and differ in diaphanity according to their tenuity and thicknesse. The figure of this coat is round, that the eye might discern objects greater then it selfe.

5. Rotunda.

Si enim Oculus non esset rotundus, quantitati rei capiendæ non sufficerit. Vid. Perspect. Comm. Lib. 1. propos. 29.

2. Humor Aqueus.

Between this Membrane and the ChrySTALLINE Humor, is lodged a liquid substance, called ὁ δακρυδης ὡς ἡδης the Aqueous, or Albugineous Humor, which is ordained diaphanous, and void of all colour, for the same reasons the Horny coat is so, and more rare then it, that here the species may suffer a second refraction.

This

This liquor effused, the next ^{3. Vnea Tunica.} considerable that occurs, is the second coat, called ~~ex~~^{oedns} the the grapy Tunicle, from the resemblance in colour and superficies it ^{Verficolor.} holds with the kernel of a grape, and ~~oedns~~^{oedns}, because as the Chorion, it receives and supports the dissemination of the Vessels, which is a production of the *Pia Mater*, immediately investing the Optick Nerve, expanded into a membrane. This, of all parts of the eye, onely is *diversicolor*; for on the outside, where it toucheth on the horny Coat, it bears fables (a colour not to be found in any other part of the body, if *Galens* inquisition satisfie, *Lib. de usu part. 10. cap. 3.*) on the inside, where it faceth the Aqueous and Christalline Humors, it is of a dark grey, or duskish brown, inclining to black; ^{Nigredinis usus} but where it constituteth the greater Circle Iris, or the Rainbow, it appears sometimes skycoloured, sometimes green, and very often black.

Concerning the black tincture of this Coat, in that part, that respecteth the Chrystalline Humor, ^{Luces debiles in locis obscuris magis apparent, in luminosis latent.} Anato-

I 3 mists

mists, and the masters of the opticks agree, that Nature intended it, either that the Chrystalline Humor being herewith veiled over; might the better recollect and congregate his own brightnesse, for, according to the position of *Albazen. Lib. 1. prop. 33.* a small light in a dark obscure place is better perceptible, and diffuses a brighter lustre, then in a wide, light place, and makes the circumjacent parts more visible; so the internall splendor of the eye becomes more bright, and the visible images appeare more illustrious in the Chrystalline Humor, because the inner circumference of the whole eye is lined with this dark and obscure membrane, by whose shadow the Chrystalline is eclipsed; so that his refulgent brightnesse reflecting back from the opposite opacity of the membrane, is assembled and united in a more vigorous lustre: or for the collection, recreation and refection of the visive spirits; for when the Chrystalline is offended by a too vehement light; we for remedy close our eyes, and the

the spirits recoyling back upon this naturall darknesse of the Coat, are reassembled and refreshed; or for the interception of light; for since the anterior perforation of the grapy coat, is the only portal, built and destined to the immission of the visible images; and there ought to be no second passage, whereby the light might intrude it selfe, what could Nature more conveniently have thought on to exclude the light, then the interjection of this black curtain when experience hath confirmed it an Axiome, that nothing better intercepts and shuts out light, then the interpositiō of opaque bodies.

But concerning the main intention of Nature, in her embroidery of this Coat (in that part, which looketh outward, and makes the parti-coloured rainbow) with such variety of dyes, and whether she contrived it either for necessary use (which is most probable) or pleasant ornament; we find the Curiosities of Oculists rather amazed, then their disquisitions satisfied. Wherefore weethink it safe for us

Iridis usus.

Iris oritur exinde, quod uvee Tunica limbus varios colores habet.

Pupilla.

to fix on nothing, but a scepticall neutrality; and to acquiesce in no other resolution, then to sit down, and modestly expect the determination of future discovery.

In the forepart of this membrane is a small Foramen or perforation, through which the visible images are intromitted to the Chrystalline, called the Pupilla, which vulgarity translates the Apple of the Eye, the narrow circumference of this (comparatively to that of the Chrystalline, or Cornea) principally conduceth to the perfection and distinction of vision: yet in many the amplitude varies; and those in whom Nature hath framed it very narrow, are quick and acute sighted: but those who have it more dilated, see but weakly and obtusely.

*Dilatatio &
Contractio.*

This Apple of the Eye is daily Conangusted and dilated, and appears much more coarctated in a luminous, then in an obscure crepusculous place; For since an Excesse of light is destructive, and the defect of it insufficient to vision: the Eternall wisdom hath, in the very entrance
of

of the Eye, contrived this window capable of dilatation and contraction: in dilatation to admit so much of the weaker light as is required to perfect and distinct vision: in contraction to exclude so much of the copious and excessive, as would either offend, or perish the Organ.

*Dilatationis
Causa.*

When we enquire the cause of this dilatation, Common and popular Philosophy refers us to the Animal Spirit; and believes that the Aperture of one Eye is dilated when the other Eye is closed, because of the conflux, and congregation of all the visive spirits into the open Eye: But this doth not satisfy our scrutiny, since though both eyes are open, yet we plainly discover this dilatation and Contraction. For (according to the annotation of *Io. Bapt. Porta Lib. 3. de refract. cap. 6.* and the confession of *Hieron. Fabricius ab Aquapendente. Lib. de vision. part 3. c. 6.*) if we look into the Eyes of any opened against the Sun, we cannot but perceive the Pupilla to be so straightly coangustated, that there will appear hardly room enough to admit the point

point of a needle. The learned Schegkrius, in his Book *de Spirit. Animal.* teacheth us, that the Foramen of the *Uvea tunica* is amplified and widened by the Contraction of Muscles in the root of the Eye, which immediately invirons the optick Nerve: but contracted by the relaxation of the same; for the Coates seem terminated in the Extream or root of the Eye. And, in our approbation, this weighs heaviest in the ballance of Truth.

This admirable constitution of the *Uvea* occasioneth those three naturall degrees, or graduall differences of our Sight; (1.) *visus perfectissimus in indivisibili constitutus*, when we, with the exquisite distinction discern *σώματα ἀδιώρετα*, minute atomicall bodies: (2.) *perfectus*, when, at a proportionate distance, we distinctly see the object, but not apprehend the minimum, the smallest particle of each: (3.) *imperfectus*, when, besides those objects, which are *è directo* opposed, we also have a confused and glimmering apparition of other; placed *ad latera*, on the right, or left hand. The

Gradus visionis.

1. *Perfectissimus.*

2. *Perfectus.*

3. *Confusus.*

The cause of which difference is thus made out; since the comprehension of the visible image is made *per* *Graduum visus causa:* *pyramidem*, by an acute angles; but the Certification is made *per Axem*, by a direct lines and onely that perpendicular radius,, which is called the *Axis*, and is not refracted, doth powerfully and distinctly represent the object; but all other *oblique radij*, by how much they are nearer unto, or removed from the *Axis*, are by so much the more, or lesse efficacious and conducive to representation. Hence comes it, that when the *Pupilla* is contracted to a smaller circumference; onely the direct and perpendicular radius in the visive pyramid enters to the Center of the *Chrystalline*, or together with it those radij which are nearest to the *Axis*: but when it is dilated, many other oblique and refracted beams, rush together with the perpendicular, and confuse the vision. And the bar-
 rous experiment of **Dionysius*, the *Cicilian* Prodigy, hath with learned
 tyranny confirmed, that if the *Pupilla*, when it is dilated, be suddain-
 ly

**Dionysius*
supra carcerem
tenibricosum,
domum extruxit
lucidissimam,
clarissimam,
calce illitam;
Et homines
carcere obscuro
diu conclusos,
ex profundis
tenebris in
lucem splendi-
dissimam Edu-
cendo occaavit.

ly assaulted with a glorious light and the lines produced from the circumference thereof doe make right and obtuse angle in the Centre of the ChrySTALLINE, then is the sight not onely offended, but abolished.

Within this dwells the inestimable Orient Pearle, the ChrySTALLINE Humor (named by *Galen*, *χρυσταλλινὸς ὕγην*, by the modern Anatomists *ChrySTALLINUS* and *Glacialis*, because of the translucency of it equals that of a concretion of yce or ChrySTALL situated, not in the Centre (as some opinion) but the anterior part of the Eye. The substance of it is wholly Aqueous, not diffluent, like that of the Albugineous, or Vitreous, but condensed and concreted like ChrySTALL; that the *Linea Visu-
alis* may herein be strongly refracted.

For though it be a Doctrine generally preached, and countenanced by a Syndrom or Conspiracy of the greatest Enquirers into this part of knowledge; that the ChrySTALLINE

*Humor Chry-
stallinus.
Ejus.*

1. *Situs.*

2. *Substantia.*

3. *Vsus.*

is the center and Soule of the eye,
 the principal and approximate Or-
 gan of sight, and that herein, and
 no other part, is made both the re-
 ception and sensation or dignotion
 of the visible species: yet (under
 favour) it seems not to have hit the
 center or unity of truth, and is not
 satisfied beyond a modest dispute:
 And they, who encounter this opi-
 nion, and affirm, that vision is not
 terminated in the Christalline, but
 that the images transmitted
 through, and with a commensura-
 ble allay of refraction prepared in
 the Chrystalline, are delivered into
 the glassy Humor, there again re-
 fracted, and collected into one
 puncto, are communicated to the
 Retina (which is the medullary sub-
 stance of the Optick Nerve, ex-
 panded into a net-like coat) and so
 presented τῇ ἡγεμονικῇ, to the princi-
 pal Faculty residing in the Braine;
 some armed with no small strength
 of argument and power of reason.

Tam cum refractione ad visionem sit summe
variora, et majora faciunt, quod species visibiles primo ab aëre, ut
diaphano tenuiori, transeunt perspicilla, ut diaphanum crassius, et inde
transus per aerem, atque hinc iterum per corneam densiorem, et per corneam
transus in Aqueum tenuiorem, atque hinc in Christallinum densiorem,
c. Senn. Lib. Inst. 1. cap. 12:

Humor Vitreus.

Et utilitatem et

modum hujus

refractionis ali-

quo modo perspi-

cilla monstrant,

quæ visibilia et

*necessaria; et cum vitreus, et ipse factus sit perspicuus, omnis coloris expers, Christallinoq; rarior, & sedem post Christallinum habeat, eamque quantitatem obtineat, quæ ad refractionem hanc respectu magnitudinis et densitatis Christallini necessaria est in eos radios, ubi Christallinum transferunt, refractos in unum punctum colligi, et retiformi tunica, sive Nervo visorio offerri, summe probabile videtur sententia. And therefore both Galen and Laurentius highly disparage the dignity of the glassy humor, the one in *Lib. de usu part. l. 1. cap. 1.* making it the Aliment of the Christalline, delivered to it $\mu\alpha\lambda\acute{\iota}\sigma\tau\omicron\nu$ by transumption; the other *Lib. 2. de sens. Organ. cap 7.* assigning it to no other office, then to be the recipient and continent of the visual Spirits. $\epsilon\iota\varsigma\ \epsilon\kappa\lambda\acute{\alpha}\mu\phi\epsilon\nu$ for the irradiation or illustration of it: when most probably, the proper use of it, is to be the last diaphanum, or transparent medium, wherein the radii after their transitus through the thicker diaphanum, the Christalline are anew refracted, conglomerated and united into one point, where*

Ejus usus.

tll

the visible image is comprehended and represented.

The two Optick Nerves have their original from the inferior, and posterior part of the Brain, and in a long tract or production travail to the fore-part of the head, and are there inserted into the eyes; but in their journey thitherward, when they have made some progression from their exortus, they meet, copulate, and concorporate, not by *χασμὸς* intersection, or thwarting each other by cross angles, like a Saint *Andrew's* Cross, not by adherence or decussation, but by union and substantial confusion.

The reason of this coition, *Aristotle*, *Lib. Problem 1. Sect.* concedes to be, that the forms of visible objects may be united; for though the species be carried through two distinct Organs, yet they appear single, and not double: Of the same opinion also was *Galen*, *de usu part. 10. Cap. 14.* But the observation of *Vesalius* is sufficient confutation for this; for he took notice in the dissection of a young man, that the

Optick

Nervi Optici.

Eorum unionis causa.

Vesalius Lib. 4.
de Fabr. corpor.
Human. cap. 4.

Optick Nerves did no where make this incruciation or coalition; yet he never in the whole course of his life complained of any depravation, or hallucination of sights; and indeed their conceit will better endure the examen, who think it a provident forecast in Nature, that all the Optick spirits, sent from the brain to the service of both eyes, may, when one eye is shut, or when any other necessity requires, flow into the open eye, and by the more united & acute vision of that, recompense the defect of the other; which use is of great moment with us frequently, for when we desire to behold any object acutely and distinctly, we veil one eye, and fix the other *è directiō* on the object; and would be of greater, if the assertion of Io. Bapt. Porta Lib. 6: de refract.

Et si igitur duos
oculos homo ha-
beat: dextro ta-
men præcipuè
utitur, si quid à

Cap. 1. that we never see but with one eye at once, could be made good.

dextris, sinistro, si ea quæ a sinistris visurus est, atque ita una vice unico imprimis oculo videt, etsi utrumque apertum habeat.

But

But since the Axis of the visive
 Cones, diffused from the object, *Musculi Oculo-*
 and carrying along the effigies of it, *rum.*
 shoots into the eye in a perpendicu-
 lar or direct line; if the eye were
 nayled in its orbita, fixt and immo-
 vable, it could comprehend no ob-
 ject, bnt what lies *è directo* opposit
 and point blank against it; and so
 by strict consequence, we should
 either be driven to traverse the
 whole machina of the body for a
 position of the eye requisite to visi-
 on, or have this sence (whose glory
 builds on variety) restrained to the
 theory of so few things, that we
 should have been subject to more
 discomfort, from their paucity,
 then information or delight from
 their discernment; that therefore
 we might enjoy a more enlarged
 prospect, and read over the whole
 Hemisphear in one momentany act
 of vision, Nature hath provided
 the eyes of Muscles, or instruments
 of agility, whereby they can (with
 so much rapid speed, that compa-
 ratively to this, the motion of the
 Sun seems slower then the advent
 K of

of *Plato's* Jubilee) apply themselves to every visible, & hold a voluntary verticity to the object. *Parvula sic magnum pervisit pupula Cœlum.*

And of these ocular Muscles there are in man just so many, as there are motions, four direct, and two circular, all situated within the cavity of the scul, and accompanying the Optick Nerve, and all conjoyning their tendons, at the corneous, do constitute the namelesse Tunicle, so named by *Columbus*, as if it had escaped the observation of the antient Anatomists; when (in truth) it had not the mention of *Galen*

*Galen. L. 10.
de usu partium.
cap. 2.*

1. *Attollens.*

The first of those implanted in the superior part of the eye, and draweth it upward, whence it is called *Attollens*, the lifter up; and *superbus*, the proud; for this we use in haughty and sublime looks.

2. *Deprimens.*

The second situated in the inferior part, is Antagonist to the former, and stoops the eye down toward the cheek, and from this is called *Deprimens*, the depressor, and *Humilis*, the humble Muscle, for this position of the eye speaks the deje-

dejection and humility of the mind.

The third seated in the *Major* 3. *Adducens*. *Canthus*, or angle of the eye, and leading it toward the Nose is called *Adducens et Bibitorius*, for in large draughts we often contract it.

The opponent to this is the Mus- 4. *Abducens*. cle in the minor Angle, which abduceth the eye *ad latera*, therefore called *Abducens et indignatorius*; for when we would look with contempt and indignation, we by the contraction of this Muscle, hale the eye into an oblique and scornful position.

If all these four work together, the eye is drawn inward, fixed, and established; which kind of motion Physicians call *motus Tonicus*, we in our language, the Set, or wist-look.

The fifth slender oblique Muscle, 5. *Obliquus*. running betwixt the eye, and the tendons of the second and third Muscles, by the outward angle, ascends to the superior part of the eye, and inserted neer to the Rainbow, circumgyrats the eye downward.

The last, and smallest, twisted 6. *Trechlea*.
K 2 into

into a long Tendon circumrotates the Eye towards the interior angle, and is called the Trochlea Muscle or pully. These two circumactors are surnamed *Amatorij* the Lovers Muscles, for these are they that wheele about the Eye in wanton or
Objectum visus. amorous glances.

Although our reason embrace for a verity, that admits no dubitation, that the object of Sight is *τὸ ὁρατὸν* Visible, in generall whatever submits to the comprehension of the Sight; and in particular, that the proper and adæquate object of this sense is Colour; for nothing is visible but under the gloss and vernish of Colour, nay, Light it self (which some entertein for the second object of vision) (submits not to the discernment of the Eye, *quatenus Lux*, under the notion of its own formality, but *instar albedinis*, as it retaines to whitenesse: yet when it attempts an established and satisfactory theory of the true nature of Colours; it soon runs to a stand, and discovers nothing of more certainty, then that this jewell, the knowledge of
 the

the nature of colours, is only digged out by the miners after Knowledge, but no hand was ever yet so happy as to be constellated to the Exantlation or landings of it.

1. For the subtle Genius of Nature *Lib de sensu & sensili. cap. 3.* defines Colours to be τὸ ἐν τοῖς ἰσώμασι διαφανὲς τὸ ἰσχαρὶν, the extremity of a diaphanum terminated; and subjoines, that Colours belongs to al things *ratione perspicuitatis*, and that the diaphanum or pellucid body terminated; is the subject of Colour; For if the *perspicuum* suffer condensation to the amission of its transparency, and so forbid the transmission of the visible species, it become colourated, and may be said to be terminated; for it prescribes bounds and limits unto the sight, and determines the act of vision: And thus ascribes the Causes of Colour unto the graduall termination of the diaphanum; which proceeds (1.) from the condensation of the diaphanum alone, without the admistion of any other body; thus starrs being lucid bodies compacted, be-

De colorum
commiffione &
speciebus, mul-
ta egregie fcrip-
fit Scalig. Ex-
ercitation.
325.

come vifible: (2.) from the com-
miffion of an opace, with a tralucient
body, thus Fire, in the primitive
fimplicity of its own nature moft
perfpicuous, appears red, becaufe
commixt; and obnubilated with
fumes and exhalations, and thus
from the concorporation and mix-
ture of one Element with another,
of a lucid and transparent with an
opace and terreftrious, come forth
the primitive and ground colours;
and from the various and complex-
ed unition of thefe firft and father
extream colours, all other interme-
diate and changable tinctures de-
duce their originall.

2. Others refer the caufes of prima-
ry and fecundary Colours to the
graduality of opacity and light.

3 And the Chymifts (who in their
laborious exploration have outdone
all other in this abftrufity) reduce
their caufes unto *Sal*, *Sulphur*, and
Mercury, and believe that bodies
receive luftre or obfcurity, and by
fequell, the various degrees
of colours, from the various mixture
of their volatile with their fixt falt.

But

But from neither, not all of these opinions ariseth, to a subtle examination, satisfaction enough to terminate our Enquirie: or to accuse us of singularity, if (in this particular) we appear scepticall, and professe to suspend our adhærence to authority, untill it shall, with lesse obscurity, attempt the revelation of this Magnale.

The Medium of Sight is τὸ διαφανές *Medium visus. Perspicuum*, all bodies qualified with pellucidity or perspicuity: and the τὸ ὀρεγνόν hath more opacity then the Medium. Hence is one Element perceptible in another, water in Aer, and Earth in water; and the same colorated thing is conspicuous in pure and limpid waters; but invisible in turbid and polluted. And for this reason a colourated object may be a Medium, provided, that it be not absolutely opaque, but more translucent then the visible. For thus *Brassavolus* saw his Pismire, and *Cardan* his Silkworm, through the diaphanous solidity of their Electricall Mausoleums:

That Vision was done by Emission *Molus Visionis.* on, and that the Optick spirits did

in a continued visive radius stream from the Eye to the object, and so apprehend it; was an error of no meaner Extraction, then the great Patriarch of the stoicks, and adopted to the patronage of all Philosophers, that spent that long interval of time, betwixt him and *Aristotle*, but exiled by the justice of *Aristotles* reason, it for ever resigned the possession of the Schools, to the just dominion of truth: and since few have been such stubborn votaries to the tyranny of ignorance, as not to subscribe the opinion of *Aristotle*, that vision is made by the reception of the visible images into the Eye; and that neither radij, nor Light, nor Spirit, are emitted from the Organ towards the object. The reasons are most elegantly recited by *Jul. Cas. Scaliger*, *Exercit.* 325. & 298. & 289. *Sect.* ib. &c. *Zabar. Lib.* 2. *de visu cap.* 4. 5. and *Andr. Laur. Lib.* 2. *de sens. Organ. Questione prima.*

Finitis visionis.

When we look within our selves, and read the end and duty of our sight, we cannot but conceive the Error

Error of *Anaxagras* *Homines ad videndum esse natos*, more veniall then that of *Aristotle* and most of his Pupils, *visum esse sensum Commoditatis*; and could heartily wish he had said *Felicitatis*. For the beatitude of man is Effenced in the Knowledge and contemplative (though but graduall) comprehension of God ; and no sense so clearly manifest's the immense glory of the Creator, as this that is familiar with the beauty of the Creature. For though the Brutall part of mankind, overrun with sensuality, think the institution of their Creation satisfied in the actions of sense, and seldome look beyond the barks and Exteriors of things : yet the Phiosopher extends his eye to invisibility, being ravished with the borrowed glory of the visible: and some have been beholding to their sight for their Conversion, and happily confessed that the Eye of their sense hath directed the acies of their reason to the essence of all essences, and soul of all causalities.

CHAP. IX.

Of the Hearing.

TWas a Hypochondriack absurdity of *Plato*, that all our Cognition is but Recognition, and our acquired intellection, but a reminiscence, or reherfall of those primitive lessons the Soul had forgotten, for proper Science is properly to Omniscience, and not to receive knowledge by infusion, or acquisition, but to have it spring from the fountain of his own essence, is the attribute onely of the Essence of wisdom, and a priviledge due to none, but the Antient of daies, to have his knowledge deriv'd beyond Antiquity: but Man, poor ignorant Man, commanded into the World on the design of knowledge, must sweat in the exploration and pursuit of it, and can never possess any science, in this life, but what hee must dearly purchase with his own discovery, or precariously borrow from

from the bounteous industry of his Forefathers. Now that the mind of man might partake the notion of what concerns this, and the future life, his Creator hath furnished him with the sense of Hearing; the sense particularly and expressly disposed for Discipline, for though wee sing Hymnes to the Eye for the invention; yet we must acknowledge a sacrifice due to the Ear, for the Communication, and distribution of Arts and Sciences. And this the Egyptians intimate in their Hieroglyphick of memory, and the Philosopher expresseth in his character of the Hearing, *Auditus est sensus disciplinae*: and the glory of our Century, *Sennertus* elegantly delivers thus, *Aures in Homine quasi porta mentis sunt, per quam menti communicantur, quæ doctrina & institutione de Deo & aliis rebus necessariis traduntur, quæque nullo alio sensu addisci possunt.*

The Hearing is an Externall sense receiving and perceiving τῶν αὐσῶν all sounds audible, by the benefit of the Ear.

The adæquate instrument of hearing

*Quemadmodum
aspectus ad vi-
tæ dulcedinem,
& commoda
magis est ne-
cessarius, ita
Auditus ad ac-
cipiendam ar-
tem, sapientiam
& scientiam est
accommodatior.
Ille ad inventi-
onem, hic ad
Communicati-
onem aptior est
Lauren. Lib.
2. cap. 12.*

1. Definitio.

2. Organum.

hearing is the Ear divided by Anatomists into the (1.) Externall, and (2.) Internall.

1. *Auris Externa.*
na.

The Externall Eare, or *Auricula*, (intended by *Hippocrates* in that prognostick, ὅτι θυχεῖ, καὶ διαρρέα, καὶ συνεπαλμύνα, ὁλέειν, *Aures frigida, pellucida, & inversa mortifera*) was intended by Nature (1.) for Ornament, (2.) for the refraction of the Aer, whose uncorrected violence and impetuosity, would otherwise shatter the Tympanum or Drum-head; (3) to catch and collect the species of soundes diffused and scattered in the Aer, and through its unfractuous Convolutions convey them into the *πύξις ἀχυστικὴς*, or auditory cavity. For those that have lost their externall Ears hear but obtusely and confusedly, and receive all sounds and articulate voices, like the purling murmur of a rivulet, or the fritiniancy and shrill note of Grasshoppers. Hence Brute Animals, by the dictate of instinct prick up or arrect their ears in a position to meet and intercept the wandering sounds; Hence *Hadrian* the Emperor

ror to palliate his *Bapuroia* and extenuate his imminution of this sense, set his hands to his ears in a prominent posture, with the palmes forward; and hence those Scythians, whose outward ears are syderated or sphacelated by extremity of cold, plant Cockle, or Schallop shells in their rooms, for the congregation and direction of the sounds that preterlaps the *Meatus Auditorius*.

Hinc exactius audiunt quibus aures exterius prominent, & si non nimium tam ex longa decubitu, quam neutricum ligaturis, aures depressas habemus, rectius audiremus.

The external Aer charged with the audible species, and thus qualified and conducted by the outward, is wafted into the inward eare, through the *πύξιν ἀκουσίδος* or auditory Canale, which is a long, round, oblique perforation of the *os petrosum*, or stony bone, invested with a thin, dense, hard, perpolite skin, that firmly adheres to the bone, that the sound may herein suffer densation, collection, and turbination. In this Cavity is found that bilious humor (called by *Ægina* *πύξιν* or *τὸν κόλον* *sordiculas in auribus*, and by the vulgar English, the eare-wax (or gluttinous expurgation of the

2. *Auris interna.*

1. *Meatus auditorius.*

*Cicero 2. de
Natur. Deorum
ut si qua mini-
ma bestiola co-
netur irrumperet,
in sordibus his,
tanquam in vis-
cio niharefcet.*

a. Tympanum.

the brain, provided (if we reject not the conception of *Cicero*) for the inviscation of the Auricularia Earewig, and other small insects.

In the end of this Foramen is spread a tranverse interstitiary, or round parchment (called by some Anatomists the myrinx, by others the mediastinum, by most the Tympanum, but by the best the drum-head) to exclude the external from rushing in, and concorporating with the internal or congenite Aer: for since the external Aer is subject to Anomalies, incrassation, humectation, and iniquation; were it but admitted to a conjunction with the originary internal, it would perturb the native tenuity and purity thereof, and impose upon it the contagion of its own impressions. The substance of this partition is not osseous, lest the sounds should be repulsed; nor carneous and soft, for that was absolutely unapt for transmission of the sounds; but membranous and nervous; yet pellucid, thin, and subtile, that the sounds may be intromitted to the
inge.

ingenite Aer; for those, who have this membrane incrassated, and too much condensed, from the primitive conformation, suffer a κώφωσις, or deafnesse incurable, and must expect the attenuation and rarefaction of it, from the energy of no heat, but that of the Sun of Righteousnesse, which ariseth with healing in his wings; and the dryest of any Membrane in the body, for the better reception of the sounds: for dry & hard bodies principally conduce both to the admission and resonation of sounds; witnesse our experiment in musical instruments and the Aphorism of our Oracle,

in his description of the Tympanum: Το δερμά τὸ πρὸς τὴν ἀκοὴν πρὸς τὰ πρὸ ἀρχῶν. Hippocr. Lib.

ὡς τὸ πρὸ σκληρῶ λεπτὸν ὄσιν, ὡς τὸ ἀεὶ χυγιὸν ξηρότατον ἢ ἄλλου δέρματος. Τεκμήρια δὲ πολλὰ, ὅτι ξηρότατον ἡχοῦ μάλιστα.

There is in the ear, neer to the rocky bone, a thin filme or tunicle, like the spiders web, and of all other membranes the dryest, but that, what hath most Siccity, is most apt to resound, there are many Evidences.

Behind this traverse, in the second

Officula tria.

*Sunt hæc ossa
solidissima, ut
resonent; & quod
mirum est, eorum
in puerulo, ea-
dem est, quæ in
sene magnitudo.
Andr. Laur.
Lib. 2. cap.
13.*

*4. Aer implan-
tatus.*

cond cavity of the eare, are found the three small bones, *Incus*, *Stapes*, and *Malleus*, the Anvil, Stirrop, and Hammer, in probability, borrowing these appellations, rather from their Figure, then office: For since solid, compacted, and polit bodies are most accommodable to the impulsion, delation, and communication of sounds, the soul of reason, the Creator framed these three bones substantially very hard and solid, and superficially perpolit, that by their durities, and lævity, the sounds may be delated to the implantate Aer; and contrived them naked & uninvested, for were they obducted with any softer involution, they would be inofficial to pulsation, and the successive trajection of sounds: and for no other reason their dimensions are the same in all constitutions, and their magnitude in an Infant, equal to that of those in full grown procerity.

We shall here, with resolution, be guilty of the omission of some parts in the ear, concerning whose use, Authors deliver more of conjecture

jecture then certitude, and rather betray our disquisition into the perplexity and wildernesse of opinion, then conduct our curiosity home to the point and unity of established truth; and apply our perpension only to the implantat Aer, being a subject as full of obscurity, as worthy the industry of the subtillest exploration. For though all parts in the ear be necessary to audition, that the vitiosity or defect of any, induceth a depravement or abolition of the action of all: Yet it is an opinion vulgarly passant, derived as high as *Plato*, assented to by *Galen*, and confirmed by *Aristotle*, *Aerem implantatum esse princeps auditus Organum*, that the Originary Aer is the precipuous instrument of hearing. For as to the reception of the visible image is provided an internal fulgor *εὐαέσματος*, consociable to the external, which should *propter similitudinem substantiæ*, with familiarity entertain the external: so also in the ear is there *ἀέρας*, an aeriall substance, generated of the most pure,

L and

Galen. 7. de decret.

Hippocrat. 6.

Platon. cap. 5.

Arist. Lib. 2. de An.

*Sedes aëris im-
plantati.*

and rarified portion of the generative materials, the seed and maternall blood, which by reason of cognation, and similitude of substance, doth welcome and embrace the delated species of sounds. But to conclude on the place, and situation of this implantate Aer, seems a businessse of no small abstrusity: *Hieron CapiVaccius* seats it in the expansion of the auditory Nerve: *Archangelus Picolomin Lect. 5.* is positive, that it is pent in the extream Cavern, or inmost den, drilled in the *os petrosum*; and *Hieron. Fabricius ab Aquapendente* beleeves, that all the cavities, angles, and creeks of the internall ear (which otherwise had remained *natural Grotescos*, and hollow vacuums) are possessed and repleted by the implantate Aer.

*Vsus aëris im-
plantati.*

We must not indubitate the existence of this innate Aer, nor question the verisimilarity of the opinion, that it is included in the sinus of the ear, to symbolize with the external advenient Aer, and so invite, at least, admit it: but that the

the principal and judicatory instrument of Audition, is Aer, we dare suspect, and can produce warrant from no contemptible authority to deny: For *Hercules Saxonia*, and *Andreas Laurentius*, (men whose names are Antidote sufficient against prejudice) account the implantate Aer, only for the internal medium, inservant to the convoy, and transmission of all sounds, simple or articulate, into the true and proper Organ of hearing; and teach us, that the Acoustick Nerve, determined and expanded in the extremity or cone of the Cochlea or Snayl-shell, is the approximate Sensorium of Hearing: And *Galen. Lib. 1. de caus. Symptomatum. Cap. 3.* leaves it for granted, that the prime instrument of the hearing is τὸ ἴδιον μέρος, the internal end or extremity of the conduit. For the implantate Aer is the receptory of the species audible discharged from the external Aer, through the anfractus and sinuous tortuosities of the ear, and

immediately transfers them to the auditory Nerve, which is an exortus or production from the fifth conjugation of the brain, running through the perforation of the *os petrosum* into the ear, and thereby a particular constitution, determined and continued for the speciall and determinate comprehension of Audibles. And a Catholic Theorem it is, sworn to by *Aristotle*, 2. *de Anima*. *Nihil expers Animæ aliqujus sensus est instrumentum*; but this innate Aer partakes not animation; for the Soul is not *actus corporis simplicis*, but *Organici*; wherefore it cannot be the immediate Organ, but the internal medium of audition, generated of the ambient Aer, not by concoction and elaboration, as are the Spirits, nor there by any action of the Soul, but by the perpetual arival of new Aer; which is partly transcolated through the Tympanum, and so delated into the Cochlea or Snayl-shell; and partly derived thither through the slender perforation
or

Vid. Andr. Laurent. lib. 2. de sens. Organ. Quæst. 10.

or pipe opening into the Palate. Hence may we resolve that Problem, why oscitation or yawning perturbs our Hearing? For in oscitation, the expulsive Faculty endeavours to discharge a dull vapour lodged in the cranies and chinks of the throat, which arising in compression of the parts, unto the ears, by those Foramina, made from them into the palate, croudes into the Snayl-shell, and causes a tonitruating and tumultuary noise, which drownes, or adulterates the calmer and more delicate species of sounds offered from without.

The external medium of this *Medium exter-*
sense is τὸ ἄνυστον, *Personabile*, Aer and *num.*
Water: Both which elements
(though *Aristotle* deafe unto the
experiment of nocturnal piscation,
would not hear of the latter) con-
cur in their efficiencies, and con-
tribute their faculties to Audition,
in more then a single respect, (1.)
as a medium qualified both for the
reception, and transvection: (2.)
as materials necessary to the pro-
duction

Objectum Audi-
us.

production of soundes. For in concussion, the Faculty of the Medium, or potentia of the Materiall, is actuated, when it is intercepted and dilacerated betwixt two solid bodies, vehemently charging each other. And a sound is a quality produced from Aer, or Water percussed and fractured by the suddain, and violent concussion or arietation of solid bodies. Hence is it manifest to the capacity of any head, that was not constellated to ignorance, that to the generation of a sound, is required the conspiracy and concurrence of three concomitant, or rather, successive Actions (1.) the affront, or shock of two solid bodies: (2.) the Elision or disruption of the Medium (3.) the resonance of the Medium; after which, immediately succeeds the sound.

Fractionis
Modus.

The manner of this laceration, the most Elegant *Julius Casserius Placentinus* delivers thus. When two solid bodies strike one against the other, the intermediate body is with such impetuosity impulsed, that

that the Atomical parts of it cannot observe the order of motion by succession one after another; but rather disorderly throng and prevent each other, before the first part hath avoided the place, another is driven upon the neck of it, and so the motion, which when successively performed, is gentle and easie, becomes, by reason of this inordinate impetuosity, tumultuary and tempestuous. Hence is it that soft and acute bodies yeeld no sound in their collision, because the stroke betwixt them doth not so disparkle or shatter the intermediate body, that thereon should follow any interpretation or fraction, whereby the calme and successive dissipation or yeelding may be prevented.

The Externall Aer, thus qualified with the impression of a sound, *Audiendi modus.* alters the next adjoyning Aer, and this impells and alters the next to that, and so successively untill *ἡ ἀκουστικὴ* by contiguity and continuation it arrive at the ear; For as

on the injection of a stone into water, there will arise circles on the surface of the water, enlarging and pursuing each other: so from the elision of Aer, are there generated invisible aeriall circles, moving in successive rounds, or vocall waves, untill they attain unto the Organ of Hearing. But this undulation is not dispatched in a moment, but in progression of time. And for this reason, a sound is not presently after the stroke delivered to places at distance: we behold the Coruscation of nitrous and sulphurous exhalations, fired in the Clouds, some minutes before wee hear the fragor given upon laceration: and wee discern the flash, a good space of time, before wee hear the report of a Cannon: and in the open field we plainly perceive the arme of a man, hewing wood, lifted up for the second stroak, before wee have heard the first.

The Aer thus impregnated with a sound, conducted and conglomerated by the Externall ear, first strikes
upon

upon the most dry, and resounding membrane the Drum-head; this thus stricken, jostles and impells the three small bones, and impresseth the Character of the sound on them: they immediately glance it forwards to the implantate Aer: this shoots it through the windowes of the stony bone, into the winding Burroughs; thence wafts it into the Labyrinth; thence into the snail-shell, and at last surrenders it to the Acoustick Nerve, which presently transmit it to the Common sense, as unto the Genfor or Judge.

CHAP.

CHAP. X.

Of the Smell.

THis is the middle Finger in the left hand of the sensitive Soul, and like vertue, dwells in *Medio* between the other four, whose Natures stand farther removed from mediocrity; For the Sight and Hearing extend their comprehension to the largest remove of proportionate distance, and can arrest the object without the line of their own situation: The Taste, and Touch work not, but by contaction, and are not active beyond the narrow Orbe of corporall Contaction, and substantiall admotion: But the smell, whose nature is a reconciliation of the others contrary Extremes, and a power in which are united the opposite impossibilities of the rest, is actuated into apprehension, partly by the interposition of a medium, and partly by the contiguity and approximity of the object.

Wee

Wee may therefore define Smell- 1. *Definitio.*
 g to be the middle sense of the
 ve externall, which perceives the
 odors of things drawn in by the
 ostrills to the mamillary processes
 of the brain, for the use and Com-
 modity of the Creature.

That the Object of Smelling is 2. *Objectum.*
 a Odour, is a universall Theorem
 miraculously established beyond the
 deniall of any: but what the nature
 of an Odour is, hath been a Catho-
 lick Problem, mysteriously removed
 above the comprehension of most.
Heracitus cited by *Aristotle Lib. de*
sensibili. cap. 5. many of the pri-
 vative Philosophers, and most of
 the Family of *Æsculapius*, have left
 on record, for an indubitable max-
 im, that the smell is not affected
 only with an incorporeall quality,
 but with a spirituall species: but that a cer-
 tain aerial, subtile substance, or
πνεῦμα ἀναθυμίασις a vaporous exhala-
 tion is expired from the Odorate
 object, which doth substantially
 move the sense: and *Galen. de instrum.*
factus cap. 2. (though the Charity
 of

*Odores non sunt
substantia.*

of *Cassorius Placentinus* attempts a witty vindication of so honorable a judgement from the guilt of Error, and would have us by *substantia* under *Subiectum Odoris*) stroke with them and resolved thus ; that which exhaleth from the bodies of things is the substance of an Odor. On the contrary, *Aristotle*, and his tribe determine an intentionall and no substantiall Emission ; and that onely the bare image exhaling from the odorate body, is delayed unto, and apprehended by the Organ of smelling. And in truth the latter opinion deserves priority, provided wee admit it with modest Caution and discreet limitation : although the former includes something of reason, and but in part deviates from the tract of truth.

For first, the magick of no arguments must seduce us to admit, that Odors are corporeall substances. *Sensus enim substantias non percipit, sed tantum earum accidentia* ; and we have already demonstrated, that

So sense is actuated into sensation, by the reall or materiall, but by the spirituall or intentionall quality of the object. Wherefore we shall be unreasonably partiall to deny the same to the smell; and must conclude that nothing corporeall, but onely the species, by *Aporrhoia's* streaming from the odorate body, both invade the Organ of smelling. And on the other side, the infidelity of no Academick can be so obstinate, as not to acknowledge, that there is an Effluvium or exhalation from the odorate object, diffused into, and transported through the air; for quotidian experience learns, that odorate exhalations extend their subtile Energy, not onely to the production of divers affections of the brain, proportionate to their own variety and vehemence; to the comfort or affliction of it, by the communication of their own excess in first or second, or formall friendship or enmity in third and occult qualities, as the Oracle of *Cous* observed, *Aphor. 28. Sect. 5. Odoramentorum*

torum suffitus muliebria educit, & ad
plerumque utilis esset, nisi capitis gra-
tatem inferret; But even to the pain
 full vellication and roſion of
 noſtrills, eyes, and the tender part
 of the face. And again, we obſerve
 moſt perfumed bodies in tract
 time, to fall into minoration of gr
 vity and ſubſtantiall contabescence
 and the Odor to continue vigorous
 in the Aer; a long time after the
 move of the body, from which
 was effluxed. All which are man
 feſto's ſufficient to aſcertain us, th
 from odorate bodies there doe
 aſcend a certain corporeall exha
 tion, carrying with it the faculty
 Calefaction, Frigefaction, exicca
 on, humectation, and other effieci
 cies, which no Philoſophy can exp
 from the naked immateriall ſpec
 or representative forms of odors
 therefore we willingly ſubſcribe th
 much, that from moſt odorab
 there doth an odorate vapour
 hale, and that this exhalation
 corporeall: but yet, that there
 preſumed and required a ſpiritual

or intentional image of this odor, to the act of the sense or smel of it, is our asseveration, and we hope the sense of Truth.

But whether there be required a concurrence of both? or whether the species of an Odor, which is only and properly the object of smel, be alway in conjunction with some corporeal subject or vapor, without whose association, it cannot be delated to the sensorium? is yet in dispute, and indeed the Axis on which the weight of the whole controversy is moved. We are satisfied that the coadjutancy of a vapour is not *semper, in omnibus et singulis*, necessary: that this *ἁπλῶς Ἀναθυμίασις*, or exhalation evaporated from the object, does not alway accompany the Odor to the Nostrils; yea that frequently the object emits no corporeall effluviū at all, and that the smelling is very often excited by spirituall qualities, or the species only of an odor, expired from the odorate body. and arriving at the Organ.

An species odoris semper vaporis vehicula indigeat?

Bæoti apud An-
tiquos stolidita-
tis et stupidita-
tis nomine ma-
le audierunt, ut
innuit. Horat.
in Epist.
Bæotum increas-
so jurares ære
naturum.

gan. For whoever grants this ex-
halation to be alway concomitant
to the Odor, as the vehicle or tran-
sporter of it; must infer an alogy
not a little derogatory to the great
attribute of God, his wisdom,
that is, mutilate the whole fifth
daies work, rob all the Citizens off
the Ocean of one sense, which by
the charter of their Creation, they
stand possessed of, and subvert the
experiment of Anglers, who per-
fume their baits. For since the Soull
of an Odor consists *in Sicco à calore*
elaborato, and all exhalations by
natural propensity ascend to unite
with the congenerous element off
Fire, how much a Bæotian is that
headpiece, that can conceive they
shift their essence, and descends to
the earth in the bottom of the wa-
ter? or when there arrived, that
they can conserve the integrity off
their nature, since all odorate bodiees
no sooner meet with humectati-
on, but they bid adieu to their odo-
rable endowments. Moreover,
whence came so large and diutur-
nous

nous an effluvium, which serves to qualifie a vast quantity of Aer, be maintained? Assuredly, if the odorate bodies, which are frequently of very small bulk, were wholly at once resolved into vapors, they would not suffice to the expletion or tincture of halfe that spacious room, which the odors possesse. And 'tis no rarity to observe perfumes of minute bodies, a long time to maintain the prodigal expence of odors, without a marasmus of substance, or minoration of gravity.

Our hopes tell us we shall offend but venially, though we here make a short excursion on the negative of that question, *An odores nutriendi vim habeant*, whether odors are endowed with the power of nutrition? For since the aliment of a body ought to be corporeall, *& ex iisdem nutriamur, ex quibus constamus*; the materialls of our nutrition, must be congenerous to those of our generation; but odors are but simple qualities, and homogeneous

M neous

neous to but one ingredient in our composition: we may safely conclude; that odors can be no pabulum or aliment proper for the sustentation of compound and solid bodies; and willingly resign such aerial pasture to the astomy or people without mouths, mentioned by *Pliny*, and after him by our countryman, Sr. *John Mandevil*, (who was very unfortunate in his travails never to visit *Anticyra*) or to the offspring of the western wind, the Spanish Jennets: and must receive what is observed in the refocillation or refection of the sick, either in suddain Lypothymies, or Hectick languors, from gratefull and fragrant Odors; and recorded of dying *Democritus*, that with the smell of hott bread only, he maintained a three daies siege against death, to be meant not of the odors, but odorate vapors exhaling from the bread, and other odorables. Neither is that a true and reall nutrition, which is made by the apposition only of an analogous substance

stance; but in propriety of language, a recreation, or refocillation only of the Spirits.

Concerning the instrument of smelling, in a licentious acception, ^{Odoratus Organon.} all men agree upon the Nose; but in a more satisfactory and severe, the best and most Physicians have determined, that the two mamillary processes of the brain, are the principall sensorium.

The Nose is b^A Anatomie distinguished into the (1.) External, ^{1. Nasus externus.} and (2.) Internal: The External (to omit the parts of it) is in the intention of Nature, inservient to a manifold use: (1.) to the delation of the Aer both into the brain, for the generation of Animal; and lungs, for the material of the vitall spirits: (2.) to the delation of Odors up to the Papillary protuberances of the brain; hence those who have suffered amputation of their Noses, fall inevitably into an utter abolishment, or great depravement of their smell: (3.) to the evacuation of the pituitous excrements

*Hinc Virgil.
Deiphobi nasi
dissectionem vo-
cat vulnus in-
honestum. Lib. 6
Ænei d.*

ments of the brain: (4.) to assist the vocall organs in the formation and melodious articulation of the voice: (5.) to be the beauty and amiable decor of the face: and this certainly was considered by that white assembly of Saxon Virgins, (whose memory smells sweetly in our English Chronicle) who, to conserve their consecrated chastity inviolate and unsullied by the violent lust of the insulting Danes, gladly embraced the amputation of their noses: taking for granted that deformity was the best Antidote against a rape, and the greatest deformity the want of a nose.

2. *Nasus inter-
nus.*

The internal nose consists of two parts only (1.) the *Os Ethmoides*, *Cribriforme*, or spongy bone: (2.) the *Mammillary Processes* of the brain.

1. *Os Ethmoides*

The spongy bone is the *Velamen* or muniment of the two mammillary productions, drilled full of slender holes or *spongiosities*, through which the inspired *Aer* is immediately conveyed to the brain, and in which the *Aer* qualified with
Odors

Odors, undergoes a prærequisite alteration and preparation, before it be presented to the prime Organ of smelling, which are two long, white, nervous, productions of the brain, situate within in cavity of the scul, invested, as al other Nerves are, with a crasse, and thin membrane, and derived to the basis of the nose.

2. *Processus
mamillares
princeps odora-
tus organum.*

This is a doctrine contemporanie to our reverend Tutor Hippocrates deliver'd *Lib. πεισάρχων* thus, *ὁσπερ γίνεται δ' ὁ ἐγκεφαλλὸς ὑγρὸς ἐὼν αὐτὸς ἢ ξηρὸν ἑλκῶντι* ξύρ τὸ δὲ μὲν ἡμεῖς διὰ τῶν βρογχίων ξηρὸν ἐδύλον. The braine doth smell the oder of dry things, attracting the same together with the Aer, through cartilagineous or grissly pipes that are dry: supported by Galen. *lib. de Odorat. Organo. 8. de usu Part. and 1. de Sympt. Caus.* and is demonstrable by two irrefragable arguments used by Laurentius thus.

That part is to be accounted the principall and precipuous *Ἀισθητικόν* Arg. 1. which hath a peculiar substance, figure, and composition, witnesse

the Aphorism of *Galen. 6. de Placit. Hippocr. & Platon*; but the mammillary protuberancies of the brain, amongst all parts of the nose, have obtained a peculiar nature, figure, and composition, to be found in no other part; but the bones, Cartilages, and membranes are in all parts alike: wherefore the principall cause of this action of smelling is to be ascribed to the Mammillary processes.

2. Arg.

There is no part in the nose alterable by odors, but these processes being full of spirits, do with facility receive the species of odors, and being consubstantiall to the Nerves, have a notion of that quality they receive.

*Medium Odo-
ratus.*

The Medium conducive to Odoration is Aer and Water, yet neither according to essence, but qualification and imprægnation. That the Aer infected with an odorate tincture is a medium, hath ever been a truth ratified beyond the dubitation of Pyrrhonian infidelity. That the water is endowed with
the

the like capacity, and perodorable faculty, we may with *Aristotle Lib. de Hist Animal. 4, cap. 8.* argue from the vulgar experiment of betraying Fish with perfumed baites.

CHAP. XI.

Of the Tast.

THe irregular sophistry of some, from a circumstantial affinity concluding an essential identity, & from a too strict exposition of that looser line of *Aristotle, Lib. de sens. & sensili. cap. 2. Gustus est quoddam genus Tactus*, hath not only started that Zetema or doubt *An Gustus sit idem sensus cum potentia, quæ qualitates tangibiles percipit?* But with pertinacity maintained the affirmative, and confounded this sense with the Touch. But as the inference is unlawfull, so is the interpretation unjust, rendring in a rigid and absolute sense, what was intended in a

conditionall, and delivered in terms of ſome latitude. For though at firſt bluſh, the words ſeem to prove that the Touch is the genus and the Taſt but the ſpecies or ſubdiviſion of it: yet to him, that ſhall with ſeverer eyes pry into the deuteroſcopy and medullary intention of them, will it manifeſtly appear that *Ariſtotle* meant no more then to demonſtrate the Cognation and ſimilitude betwixt theſe two Senſes. For had the Contents of his thoughts been, that the Taſt and Touch were not in ſpecie different, in probability he would never have ſaid, *Guſtus eſt tactus quidam*, but have ſpared that conditionall particle, and in poſitive and down right termes have ſaid *Guſtus eſt tactus*.

Neither can it become our reaſon to wonder why *Ariſtotle* ſpeaks thus of this ſenſe onely, and not of any other; ſince ſo large an Analogy and reſemblance can be made out, betwixt no two ſenſes, as betwixt this and the Touch; for in both there can bee no comprehension,
with-

without the immediate application of the object on the *Sensorium*, and the contiguity of their extremities: and Gustable Qualities, in regard of corporeity, materiality, and terriety, so fitly correspond with Tangible, that wee may safely avouch that sentence of *Aristotle*, *Gustabile est quoddam tangibile*.

Wherefore we must acknowledge the Tast a peculiar Sense, declaring its dependency on, and distinction from the Touch, both *Objecto* and *Organo*; For the object of one is τὸ ἅπτον Tangible, of the other τὸ χύσσοον Gustable: and the Touch conserving its integrity and vigor in the tongue, the Tast may be abolished or depraved: *Ubiunque est Tactus, ibi non etiam est Gustus*.

It is generally defined to bee one of the five externall senses, whereby ^{1. Definitio.} wee discern the difference of Savours.

The proper and approximate instrument of Tasting is the Tongue; ^{2. Organon.} and in particular (not the investing Tunicle as *Galen*, and after him *Valerius*

Τὸ δ' αἰσθη-
τικὸν ὄργανον
γλῶττα, inest.
pars sentiens
saporem lingua
Arist. Lib. I.
de Histor. Anim.

lessius opinioned, nor the gustatory nerve expanded into the investment, as some conceive by tradition from *Columbus*) the pulpe or carneous substance of it, which being of a peculiar and unparralelled constitution, soft, lax, rare and spongy, doth imbibe the saviours, comprehended in their own liquid principles and conservatories, and impregnated by the flaver or salival humidity of the mouth.

3. Medium.

External medium there is none; for the gustatory Faculty is not invited into the act of comprehension by the distantiall, but contiguous position, and immediate admotion of the sapid object to the Organ; but the internal medium is the porous pellicle, or spongy integument of the Tongue, assisted by the concurrence, and coefferency of the spittle, or salival exudation of it: For this humidity is natures menstruum, ordained for the maceration, extraction, and imprægnation of savors, which having passed the corrective or auxiliant

liant operation, of this liquid mediator, are through the incontinuities, or interstitiall divisions of the obducted Membrane, soaked into the pulposus substance of the Tongue, and therein perfected into gustation. *Vt enim Color objectum visus est, & tamen sine lumine videri non potest: ita sapor objectum gustus est, qui etiam non gustatur sine humido, quod est veluti actus mediij*, was the expression of Aristotle.

The object of the taste is τὸ γύσσον, a vapour; this is a position, whose 4. Objectum. certitude is erected on no meaner foundations than the infallible, and scientifick doctrine of our sense, whose information in its own proper business, is thought superior to the incroachment of delusion, and carries authority sufficient to convert, or silence contradiction) and the aggregated affirmation of all Authors, whose judgments favour any thing of reason: But what the nature and original of a vapour is, hath empuzled the enquiries, and retired from the know-

knowledge of those antient worthies, *Empedocles*, *Democritus*, *Lucretius*, *Alexander Cippus*, *Anaxagoras*, *Galen*, *Aristotle*, and all succeeding Philosophers who had not with more than one eye looked into the Arcana of Chymistry, and whose cæcutience had missed the illumination of Spagyrick Collyrium.

*A digression
concerning Sa-
pours and their
causes:*

For though *Galen* and the Peripateticks hunt a savour from Elements, and the determinate composition of their first qualities; thus. There is no elemental or homogeneous body qualified with savour, which is properly an affection of compound materials, requiring to its production the syndrome, and syncriticall union of three principles, viz. (1.) Terrestrious siccity, (2.) Aqueous humidity, (3.) Heat, the *θεῖον δυνάμιον*, or active ingredient, which carries the masculine efficiency in operation; naturall; for water, in the simplicity of its primitive constitution being insipid, if percolated through *siccum terrestre*, acquireth a sapidity.

pro-

proportionate to the intense or remiss aduſtion of the materiall diſſolved into concorporation, as we cannot but obſerve in fountains, which contract to their ſtreams the various ſapors of thoſe ſundry veins of earth, through whoſe ſtraits they have ſteered in their ſubterraneous voyages; and in a lixivium or lie, which admits the amaritude, or ſalsedo, diſcernable in the taſt of it, from its tranſcolation through ſiſhes: yet the eſſence of a ſapour conſiſts more in *Humido*, then *Sicco*, and is a qualitie affecting the Taſt, ſhewing its production to the permiſſion of an aqueous Humidum, with a terreſtrious ſiccum, in compound bodies. But ſince the temperature is various, and the Aqueous Humidum united with the earthy Siccium (which is the ſubject of ſapors) hath its conſiſtence participating ſometimes of craſſitude or thickneſſe, and ſometimes of tenuity or thinneſſe; and the Heat (which is the active efficient) varies its activity, according to the gradu-

Saporis defini-
tio.

graduality of intention or remission, hence do those various and different kinds of savors derive their Original.

Fernel Method.
Met. lib. 4.
cap. 3.

And though Physicians on the tradition of these principles found the invention of remedies, and exact rules for the investigation of the manifest faculties of Medicaments by the dignotion of their savors; and to this end constituted nine differences or ground distinctions of savors, as they are enumerated by that mouth of the Arabian Oracles, *Fernelius*, thus.

1. *Acer.*

A sharp or keen savor is that which affects the mouth and tongue with an acrimony, compunction, and calefaction; this is conspicuous in Pepper, Pellitory, Euphorbium, &c. It is suscitated from a thin, dry, and hot matter, nor can it subsist in a subject of any other constitution.

2. *Acidus.*

Acide, or sharp, is that which penetrates and bites the tongue, but without any sense of heat; such is apprehended in Vinegar, juice of Limons

Limons, Citrons, some Malacotones and Quinces: this flowes from a thin, dry matter, or that whose innate heat is expired by putrefaction, or whose Original frigidity is concomitant to tenuity.

3. *Pinguis.*

Fat, or luscious, sollicites the gusto neither with heat nor acrimony, but fures or daubs the mouth with an unctuous lentor or viscosity; such is chiefly discerned in Oyles, either simple, or amygdaline, in butter, & fat, which hath no rancidity, either acquired by antiquity, or originary and naturall; such as the fat of Lions and Wolves; in mucilaginous plants, as Althæa, &c. This hath its production from a thin, aeriall matter, temperate in heat and cold.

A salt sapor doth not very much calefy, but by a sharp siccity bite the tongue: this is manifest chiefly in salt and Nitre; but more obscurely in the herb Crithmum, or sam-pier: it subsists in a matter whose ingredients heat and siccity are equall. For in water (which is not exqui-

4. *Salus.*

exquisitely simple) the externall heat in duration of time, torrefying and exiccating those particles on atomicall portions of Earth, which are incorporated with it, induceth a saltneffe and brackishneffe, perceptible by the tast. There is another salt sapor produced by Chymistry, out of the most drie and earthy matter, which the extreame and most intense activity of fire hath torrefied to Cinefaction. And there is no compound body *in rerum natura*, from which a Chymist may not extract the Calx and proper salt, discernable by the tast, as from Soot, Tartar, Nitre, &c.

5. *Austerus.*

The Austere doth both moderately bind, and with a certain asperity or roughneffe coarctate the parts of the tongue; and hence, in some measure dry and refrigerate: this is properly called *Crudus sapor*, and is peculiar to all fruits during their immaturity, as all observe in the juice of unripe Grapes, Apples, Pears, Medlars, and also Pursellane: it consists in a matter moderately par-

participating earth and water, ſubject to the dominion and exuperancy of cold.

The ſweet ſapor, with ſuavity and jucundity delights the ſenſe, and is not offensive by the unevenneſſe or ſurpluſage of any qualitie: ſuch is conſpicuous in Sugar, Hony, Liquoriſh, Polypody, Jujubes, and moſt fruits after maturity, and in moſt Lenitive Medicines. 6. Dulcis.

The Bitter is antagoniſt to the ſweet Sapor, is unpleaſant and offensive, and doth, as it were, corrade and divell the ſenſe. This notably diſcovers it ſelf in Alöes, wormwood, the leſſer Centaury and Cölocynthis, by whoſe example the others are eaſily diſcovered. The matter of it is craſs and terrene, torriſied and exiccated by exceſſive Calidity: and hence *omne amarum eſt calidum & ſiccum*. 7. Amarus.

The ſowre borders upon the auſtere or pontick ſapor, but is far more ungratefull to the ſenſe, doth conſtringe & exaſperate all parts of the mouth, and for this reaſon more
N dry

dry and cool: prodigally perceptible it is in Pomegranate rindes, Galls, Sumach, Cypressenuts, Achornes, &c. it dwells in a composition totally terrene and dry; whose languid heat is subdued to inactivity by the conquest of its cold adversary, confederate with siccity.

9. *Inspidus.*

The inspid, fatuous, *Ἀστος*, is not in the rigor of language, a Sapor, but the privation of it, and doth strike the sense with no manifest quality. To this are referred, all the species of bread-Corn, Gourds, Gitrull, Cucumbers, &c. Though these are materially crass, yet not absolutely earthly, dry, and astringent, but dashed with a portion of humidity, which notwithstanding is not exquisitely permixed with siccity, by the power of heat. And since neither the cold is potentiall in any considerable excessse, it of necessity comes to passe, that neither the Sapor can be judged of by the Gusto, nor any quality or medical faculty investigated by the insensibility of the effects.

We

We say, though the endeavours of most have steered this course, and thus attempted the deduction of savors from primitive qualities: yet have they rowled the stone in vain: and had not the light of the Chymists Fire relieved our benighted enquiries, they had yet been groping in the obscurity of error. For wee see good reason to be of Scaligers opinion, that wee may as safely deduce life, laughter, sense, intellection, increment and voluntary motion (actions flowing from Forms more noble and divine) from Elements, as Savors from their first qualities. VVherefore we conclude it more honorable and satisfactory to adhere to the laudable doctrine of Chymists, who refer Sapor unto Salt; *Sal enim est primum sapidum & gustabile, & omnia quæ saporem habent, eum propter Salem habent. Ubi cunq; enim sapor deprehenditur, ibi sal est: & ubi cunq; sal, ibi sapor. Sennert. de Consensu Chymicorum cum Galenicis cap. II.* wee direct the unsatisfied to that

N 2

ju

Scaliger. Lib. de plantis, primæ qualitates penè ab omnibus existimatae sunt saporum causa: tametsi nobis aliter videtur: Nam si sapor à calore fit, ergo calidum elementum primo & per se sapidum existet; Quid quod multa calida mista insipida. Quod si quis dicat ex 4 qualitatum temperatione conscribi saporem; respondeat, an in elemento quopiam, qua elementum est, sapor insit? non sane est. Cæterum, quemadmodum neque vita prodit ab elementi, neque risus, neque sensus, neque intellectio, neque crementum, neque motus voluntarius, sed à formis aliis quam elementaribus; ita sapor quoq;.

judicious treatise of *L. Grillus de
de sapore amaro & dulci.*

CHAP. XII.

Of the Touch.

THIS is that fertile sense, to whose delicate invitement we owe our Generation; for had not the wisdom of providence in her design of immortality, endued the Organs official to the recruit and rejuvenescence of mankind, with a most exquisite sense of *Touching*, and annexed a pleasant titillation, or lustful fury, which transports man beyond the severity of his reason, and bewitcheth him to the actions of carnalitie; the Deluge had been spared, for the first age had seen the world depopulated, and been the last age; and humanity had been lost in the Grave, as well as innocence in the fall of our first Parents. *Quis enim, per Deum immortalem, concubitarum rem aded fadam sollicitaret, amplexaretur; ei indulgeret?*

* *Mare Anton. de seipso. Lib. 6. Num. 10. tum Coitus, intestini parvi affricatio, mucique excretio, non sine Convulsione. Ita Meric. Casaubon.*

Quo

Quo Vultu divinum illud Animal plenum rationis et consilii, quem vocamus hominem, obscenas mulierum partes, tot sordibus inquinatas attrectaret, nisi incredible voluptatis æstro percita essent Genitalia? and let us but abate the temptation of this sense, and the libidinous charms of it, preambulous to the act of congression, we shall soon discover that so magnified a delight of sensuality to be no other, then what that noble Stoick *Marcus Antonius* defined it Εὐπείρα παρὰ τοῖς, καὶ μὴ τίς τις σπαστὴ μοχλεῖται καὶ χρίσας. But the attrition of an ordinary base intrall, and the excretion of a little snivell, with a certain kind of convulsion, as *Hippocrates* describes it.

This is that friend that conserves us in our first life, which we spend in the dark prison of the womb; ushers us into this, which our improvidence trifles away on the superinductions of sin, and never forsakes us untill our translation into the future. For when all our other unconstant senses perish, or are up-

Arist. de An. L.
3. cap. 13. Text.
 67.

on small perturbations of the mind suspended, and leave us unguarded, and prostituted unto the cold embraces of death, this faithfull and unseparable *Achates* doth attend us unto that moment, which shall determine our mortality. Hence *Aristotle* drew that prognostick, that if any creature be deprived of this sense of *Touching*, death will of necessity ensue: For neither is it possible (saith he) that any creature should want this sense: neither to the being of a creature is it of necessity that he have any sense besides this.

In brief, this is that perswasive sense, on whose testimony, the warie Apostle chose to part with his infidelity, and to conclude the presence of his revived Lord: that painful tender sense, on the patience and victory of whose torments, the glorious Souls of Martyrs have ascended to the consummation of their faith. That virtuell and medicinal sense, by which the great Physician of the world was pleased
 to

to restore sight to the blind, strength and activity to the lame, hearing to the deaf, to extinguish the fever of *Peters* Mother-law, stop the inveterate issue of his *Hæmorrhoidal* Patient, unlock the gates of death, and reduce the Widowes Son from the total privation, back to the perfect habit of life.

Concerning this sense, there are no mean controversies among Philosophers, and the first enquirie is,

An tactus sit unus numero sensus? An tactus unus numero sensus sit.

Whether there be only one single power of touching (as there is one faculty of seeing, a second of hearing, a third of smelling, a fourth of tasting) or many distinct powers?

Aristotle moves this query. *Lib. de Anima, cap. 2.* and subjoynes this reason of his dubitation, *Vnus sensus est unius primæ contrarietatis, &c.* One single sense hath but one proper object, to which all, that it perceives, may be referred: But the touch seemes not to have one common object, but many; for it judgeth hot and cold, dry and moist,

N 4 heavy

heavy and light, hard and soft, rough and smooth, thick and thin, &c. which are not reducible to any one common Genus; and the same reason, according to which they are qualified for the perception of the touch. And by the treachery of this *ignis fatuus*, the facilitie of some, who were far on their journey toward *Athens*, hath been seduced so wide off the tract of truth, as to fall upon the absurd belief, *Plures esse Tactus*, that there is a plurality of touching Faculties; and of these some make two, one for the discernment of calidity and frigidity, another for the dignotion of humidity and siccity; others superadd a third, for the perception of gravity and levity; a third sect determines, that there are as many distinct powers of touching as there are *διαφορὰ καὶ ἐναντιώσεις κατὰ τὴν ἀφω* differences and contrarieties of tangibles: a fourth hath yet multiplied their number, and superadded others, to the sensation of pain and pleasure, delectation, vengery, hunger and thirst.

On

On the contrary, many conclude on the singularity of the touch, which although it comprehend objects in number, numerous, and in nature, various and repugnant, yet doth apprehend them all under one common reason, and determinate qualification: after the same manner that the sight discerns white, black, red, yellow, green, and all *sub communi colori, coloris ratione*.

Although we confesse our judgment below the decision of this high dispute, and that many great Clerks have determined of nothing, but the impossibility of its determination; yet probability invites us to this latter opinion: *unam esse tangendi potentiam*. For although there be a certain, *Ἀλλοιωσις* or material immutation in the Organ, preambulous to Taction; and this alteration is various and different, according to the variety and difference of tangibles; yet from this the unity of the Touch is not æstimated, but only from the spiritual,

all alteration, since it is proper to every sense to receive, not the substantiall, but intentionall formes of its proper object. And this spirituall alteration, which is the same in all the contrarieties of the tangible objects, constitutes one individuall sense, otherwaies we may find no lesse varietie in any of the other senses. Neither shall we need to grant a plurality of Touches for pain and pleasure, since pain and pleasure are not perceived and distinguished by the Touch, but the objects of those passions.

Organum tactus

The other greyheaded contention (devolved from great antiquity to the present, and not unlikely to descend to the bottom of future times) is concerning the instrument of this sense; some concluding for the Flesh, others the Skin, and most the Nerves: How lame and inconsistent with the integrity of truth each of these opinions is, our succeeding lines will attempt to declare.

*Adequatum est
Membrana,*

Since every sense hath its peculiar

liar Organ, without which the facultie must remain uselesse and unactive: and this Organ is, by the provident law of constitution and prædisposition, subject to the admission of that ~~the~~ or affection, which the object shall impose or impresse on it; and that part is to be accounted the Organ, which is manifestly affected, and altered by the object; we suppose the induction good, if applyed to the touch, that in all members which discern tactile qualities, there is the instrument of touching; and that part which in every place of the body, is affected and changed by tactile qualities, is the Organ of touching. And since the touch resides in no part which is not furnished with a membrane, and *è contra*, wheresoever any membrane is, there is the sense of touching also; we conclude, that the Heart Membranes are the true, prime, and adæquate Organs of the Touch, and that all parts receive their sensibilitie from them.

Some have endeavoured the sub-
ver-

Non Care.

version of this opinion, but with vain and inconsiderable objections, for what they urge; that the Flesh is endowed with the sense of feeling, is manifestly false. For the Flesh feels not *per se*, or by any sensible power inhærent to it selfe, but as it is furnished with Nervous or Membranous Fibres, which are bestowed on the substance of the Muscles: But the Flesh of the viscera, and glandules, whose substance is unprovided of Fibres, is wholly devoid of sensibility.

Nec Necus.

And although Galen teach us, *Lib. de placit. 7. Cap. 6. Ἀπὸ τῆς ποσότητος τοῦ νεύρου λαμβάνονται δύναμις αἰσθάνεσθαι* that every part furnished with a Nerve, enjoy the sense of feeling; yet are we to allow his Axiom truly in a qualified sense, that is *quatenus ipsi nervi membranosi sunt*; as the nerves themselves are membranous, and disseminate their fibrous surcles and capillary productions on the parts. Otherwise if we consider the Nerves in *sensu diviso*, in the naked simplicities of their own natures, as they are strictly

strictly and properly Nerves, they are not the proper instrument of touching, but Canales or conduits inservient to the distribution and transvection of the Animall spirits into all parts of the body, in which respect they are official to the touch no more, then to the rest of the senses. But that qualification and endowment of sensibility they possesse, they borrow from the membranes, wherewith they are invested; as ordinary observation of wounds of the Nerves, especially the greater ones, wil inform us; for the medullary substance may be handled and drawn forth of the wound, without any pain at all; but if the coat or membrane be but touched, most exquisite and invincible torments immediately ensue.

Concerning the skin, we grant it to be the common integument of the body, whose principal and publick action is *esse tactus instrumentum & ad subjectarum partium tutelam*, to be the instrument of Touching, and discern external inju-

Cutis est instrumentum tactus, praeipuum, sed non adequatum.

injurious instruments that invade the body; and we beleeve that *Galen* said very truly, *Cutem, maxime quæ est in manu, omnium sensibilibus norma esse, & tactus instrumentum, prudentissimo Animali proprium, quæ, ut commune instrumento, ad res tangendas & apprehendendas, omnium qualitatum tangibilium differentie melius quam ulli alia corporis parte, dignoscuntur*: Yet we cannot concede it to be *unicum et æquatum tactus Organum*, the onlie and adæquate instrument touching; but since other parts could not want this sense for the avoidance of destructive and noxious objects, nature hath been far more bountifull, and diffused it into the most retired parts; and for this reason the Membranes are dispersed through all the body, and by their mediation the sense of touching, which in many of the internal parts is most exquisite and acute.

The collection of all is, that the præcipuous Organ of the touch, is

Of the Touch.

the skin, chiefly that part where-
with the hands are lined, as de-
stined to the common apprehension
of all things tangible: but the adæ-
quate, are the membranes; by the
benefit whereof, all other parts
(the skin excepted) obtain
the sense of Feeling.

FINIS.
